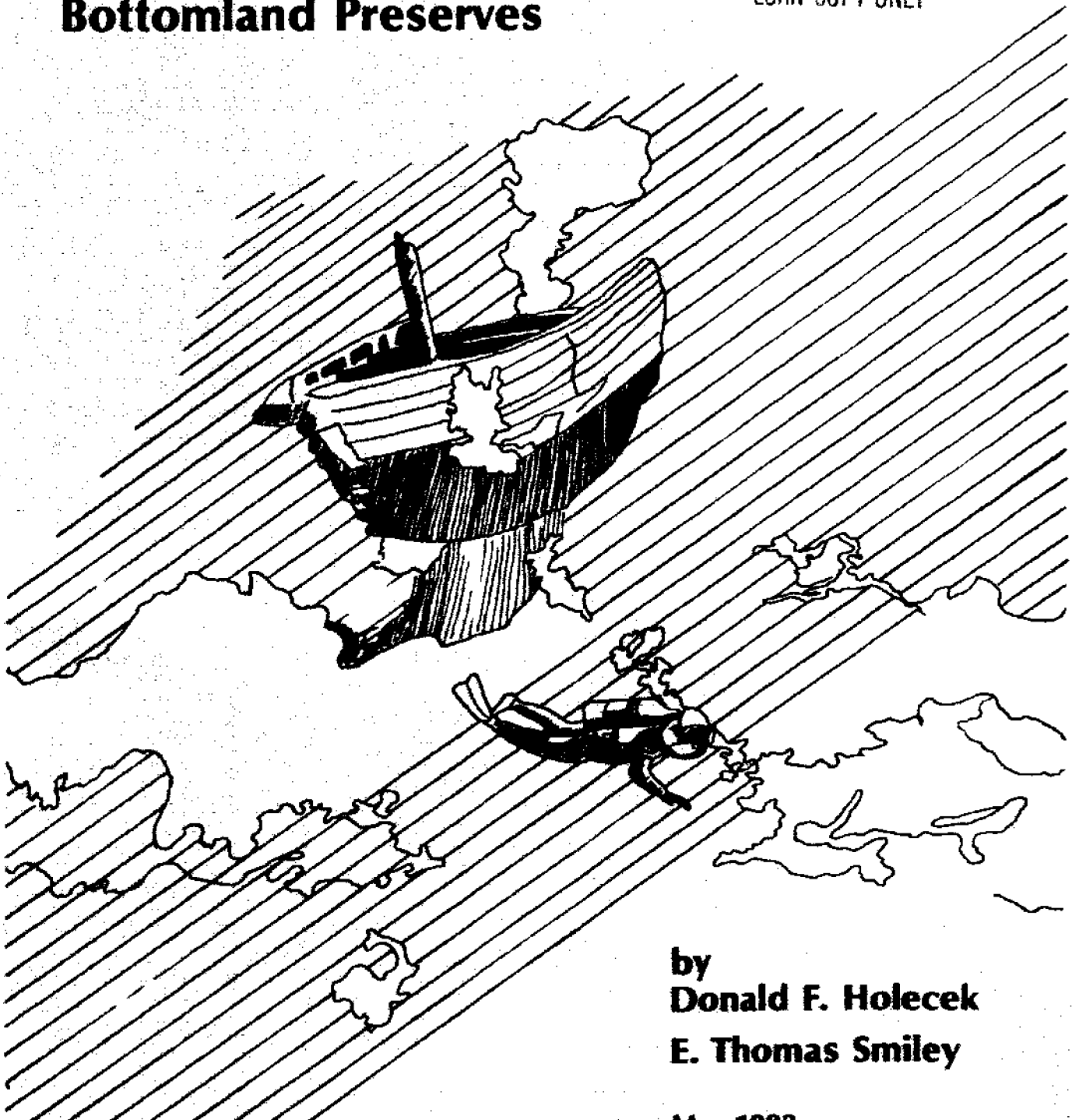


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Management Guidelines for Michigan's Great Lakes Bottomland Preserves

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by
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May 1982

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Michigan's Great Lakes Bottomland Preserves**

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MICHU-SG-82-201
\$1.00

MICHIGAN SEA GRANT
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This research was sponsored by Michigan Sea Grant under grant NOAA-79AA-D00093, project number R/CZ10, from the Office of Sea Grant, NOAA, U.S. Department of Commerce and funds from the State of Michigan.

ACKNOWLEDGEMENTS

We would like to thank Jim Hane and Bruce Andrews of the Michigan Department of Natural Resources, Dr. John Halsey and Mike Smith of the Michigan Department of State, and Louis Twardzik, Chairman, Department of Park and Recreation Resources, Michigan State University, for their cooperation and critical reviews of this manuscript.

We also appreciate the secretarial assistance of Bettye Warren and the graphics by Dan Conway.

ABSTRACT

On July 2, 1980, Governor William G. Milliken approved Public Act 184. This new Michigan law is designed to "protect and preserve...abandoned property of historical or recreational value on the bottomlands of the Great Lakes." Among its provisions the law states that: "The Department of Natural Resources shall establish Great Lakes bottomland preserves." Two such preserves have been designated and a third is being planned. The purpose of these guidelines is to provide suggestions for managing these new facilities in such a manner that they can be enjoyed by visitors without seriously diminishing their unique historical and recreational values.

Although bottomland preserves, or underwater parks as they are more commonly known, are new in Michigan, several do exist in other areas of the U.S. and in other countries as well. These guidelines draw heavily from management experiences with existing park/preserves and land based facilities with similar management objectives. It must be recognized that these guidelines were framed prior to actual experience with operating Michigan preserves, and preserve managers will need to modify them in order to deal with problems we were unable to anticipate.

The guidelines begin with a description of the components of a preserve system and the interactions between its components. Individual components and interactions are then singled out and management problems likely to be associated with each are identified. Recommendations for dealing with these problems are provided, drawing from the collective resources available and our own subjective judgment. We conclude by calling for careful monitoring of preserves with the objective of filling in existing gaps in these guidelines.

Chapter 1

BACKGROUND INFORMATION

A Brief History of Michigan's Aquatic Preserves

The idea of creating aquatic preserves or underwater parks in Michigan is a relatively recent idea, officially gaining interest fewer than five years ago (Warner and Holecek, 1978). In 1972, the Office of Planning Services, Michigan Department of Natural Resources, funded a study by Dr. Richard Wright, Bowling Green University, to locate areas of significant concentrations of shipwrecks in Michigan's Great Lake waters. The ultimate goal of the study was to assist park planners in finding those sites most suitable for aquatic parks.

The feasibility of aquatic parks in the cold waters of the Great Lakes was first demonstrated in Canada. In 1973, the Canadian provincial government created Fathom Five Provincial Park in Lake Huron. Fathom Five is centered around a concentration of shipwrecks very similar to concentrations found in portions of Michigan's Great Lakes. Since its establishment, the park has attracted up to 1,000 visitors on peak weekends - a testimony to its success.

In 1975, the Department of Park and Recreation Resources, Michigan State University conducted an underwater survey of Lake Huron's Thunder Bay off Alpena County, Michigan. The goal of the survey was to collect data on shipwreck locations and conditions, geological resources, and other important resources and conditions in the bay. The survey located 26 shipwrecks. Following the survey, boundary proposals were made to establish an aquatic preserve. A documentary slideshow was then produced to explain the concept of aquatic parks in the Great Lakes and the nature of the resources to be managed and protected. The slideshow was then presented to groups all over the state.

The idea of aquatic parks quickly caught on especially with historic organizations and diving groups. Individuals from these groups urged the state legislature to include a provision for preserves in pending legislation. The effort resulted in the redrafting and eventual approval by the governor of Public Act 184. This act, among other actions, mandates the establishment of Great Lakes Bottomland Preserves (see Appendix I for complete text of Public Act 184).

Description of Bottomland Preserve Areas

On June 24, 1981, two bottomland preserves were established in Michigan, Thunder Bay preserve in Lake Huron and Alger Preserve in Lake Superior. Thunder Bay Preserve runs between South Point and Middle Island and includes all bottomland and water from the ordinary high water mark along the shoreline out to the 150 foot depth contour. The area within the preserve contains about 288 square miles and represents about 14% of the total area authorized for bottomland preserve designation in Public Act 184*. The area has been well studied, contains the necessary resource base for an aquatic preserve, and already attracts many divers.

* The Act authorizes designation of up to 5% of Michigan's total Great Lakes bottomland area as preserves.

The Alger Preserve is in Lake Superior off of Alger County and the city of Munising. This area is also popular with divers and has ten known shipwrecks. The proposed boundary includes the area between AuSable Point and AuTrain Point from the ordinary high water mark to the 150 foot depth contour. The area within this preserve is about 113 square miles which is 6% of the area available for preserves.

Chapter 2

THE BOTTOMLAND PRESERVE SYSTEM

Introduction

The following guidelines for the management of Michigan's Great Lakes bottomland preserves were drafted primarily to assist the Parks Division, Michigan Department of Natural Resources and the History Division, Michigan Department of State which are charged with the administration and management of Michigan's "aquatic parks".

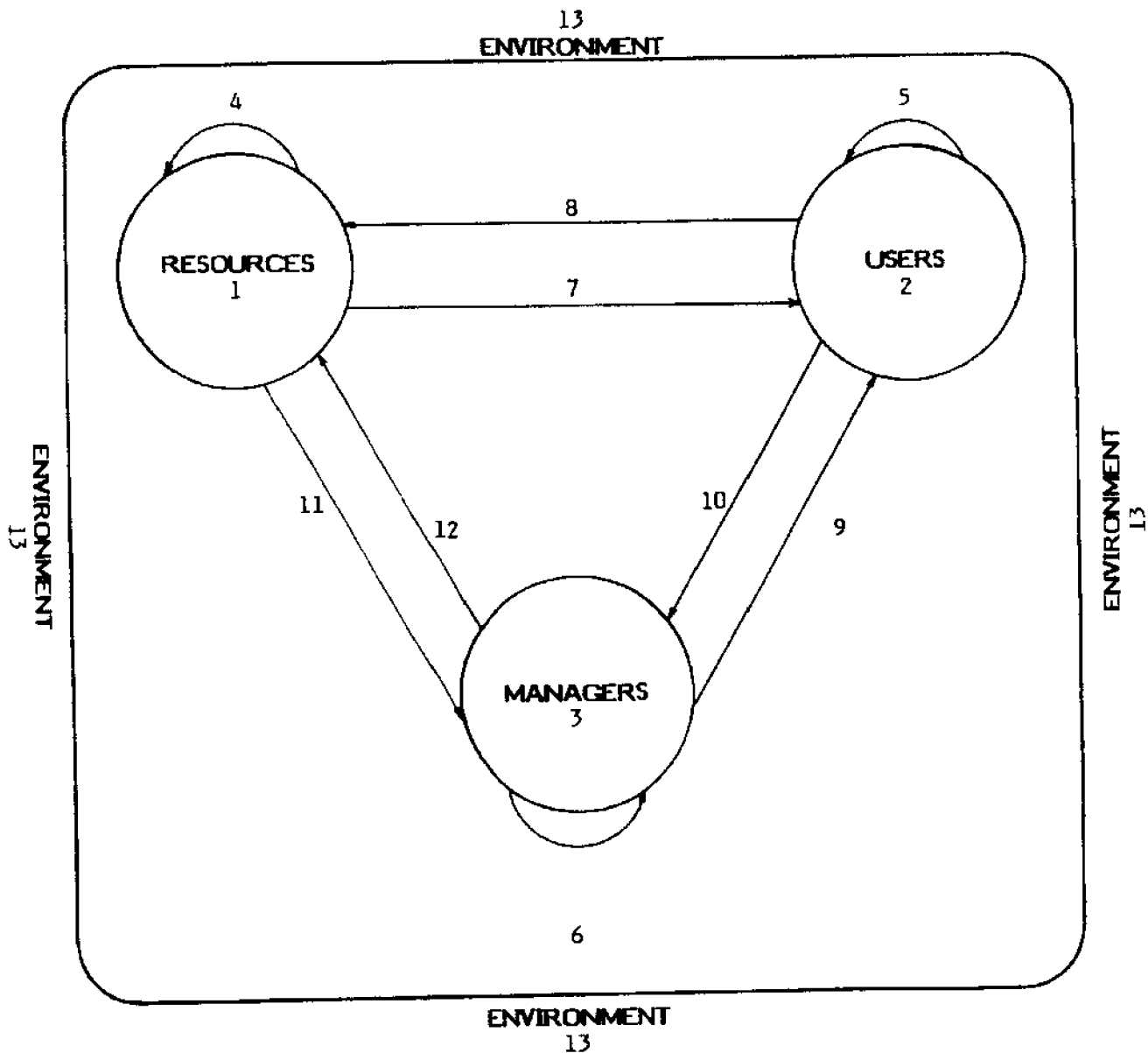
A number of constraints or assumptions were accepted in drafting these guidelines which need to be noted here. First, we assumed that these preserves will be jointly administered by the Department of Natural Resources and the Department of State as are several of Michigan's land based facilities such as Fort Wilkins State Park. Secondly, the guidelines' central focus is on designated bottomland preserves and does not specifically address management of bottomlands outside of preserve boundaries. Thirdly, we assumed that the state will institute formal and informal methods for updating these guidelines to reflect management experiences with specific preserves over time. Consequently, these guidelines are based upon information gathered from a number of sources and from considerable speculation concerning management issues likely to arise in Michigan's preserves. They are, nevertheless, forecasts. Monitoring of Michigan preserves will be necessary to establish their long term appropriateness. Finally, this report does not address the issue of the criteria that should be used to select future preserves.

A Bottomland Preserve System

It seems desirable before proceeding to specific management guidelines to present a general overview of what a bottomland preserve system is or might be. Probably, the closest equivalents in Michigan are our land based parks which have been developed around a historical theme. Fort Wilkins in the upper peninsula and Fort Michilimackinac at the tip of the lower peninsula, are both examples of historic land based parks. Both of these areas are managed by the state to preserve their historical values and to provide visitors touring the areas with enjoyable experiences. If we look more closely at these areas, we can see three major components to each of them. First, each has a set of historically significant buildings and facilities to serve visitors. Secondly, there are users who visit the areas in search of educational and recreational experiences. Finally, there are managers charged with serving the visitors and protecting the resource base.

These three components -- resources, users, managers -- interact with each other and form a system. A bottomland preserve can be similarly described and is depicted in Figure 1. The arrows connecting each of the three components illustrate that they are linked to each other in one way or another. One example will serve to illustrate the linkages within the system. Users of bottomland preserves impact the system in differing ways as they use the resources. These impacts are depicted in the figure by Arrow 8. The managers monitor the resource base and thus observe the results of user impact on the resource base. For example, a user might remove parts of shipwrecks. Management, as indicated by Arrow 11 receives information from the resource base about this removal. Finally, the circuit is completed by management interacting with

Figure 1. Schematic of a Bottomland Preserve



- | | |
|--------------------------------------|---|
| 1. RESOURCE SUBSYSTEM | 8. USERS IMPACT ON RESOURCES |
| 2. USER SUBSYSTEM | 9. MANAGERS IMPACT ON USERS |
| 3. MANAGEMET SUBSYSTEM | 10. USERS IMPACT ON MANAGEMENT |
| 4. RESOURCE SUBSYSTEM INTERACTIONS | 11. RESOURCES IMPACT ON MANAGEMENT |
| 5. USER SUBSYSTEM INTERACTIONS | 12. MANAGEMENT IMPACT ON RESOURCES |
| 6. MANAGEMENT SUBSYSTEM INTERACTIONS | 13. INTERACTIONS AND IMPACTS BETWEEN THE SYSTEM & THE ENVIRONMENT |
| 7. RESOURCES IMPACT ON USERS | |

users, Arrow 9, to modify their behavior in order to minimize negative impacts on the resource base. It is not possible here to describe fully all the interactions between various components of the bottomland preserve system, but some others will be presented subsequently.

In addition to interactions between the components of the system, there are interactions within the three components themselves. These are depicted in the figures by Loops 4, 5, and 6. For example, divers, members of the user component, will on occasion come in conflict with fishers. It is important for management to be aware of such potential conflicts and plan ways to minimize them.

At this juncture, various components of the bottomland preserve system have been briefly described and illustrated. The final element in Figure 1 to be introduced is item 13, the environment. The environment of a bottomland preserve system includes social, political, economic, and physical dimensions. There are significant potential interactions between the system and its environment which managers must consider. Possibly the best specific example, which will be of immediate concern to managers as preserves are developed, is the interaction between state government and other levels of government concerned with how preserves are managed and developed.

In the next section of this chapter, each of the elements in Figure 1 will be described in considerably more detail. In Chapter 3, management issues and problems will be discussed following a similar format. Some elements of the system will receive considerably more stress than others because they are more significant to management, but it is important to consider all elements to insure that the guidelines do not omit potentially significant management problems that need to be considered.

The Three Subsystems

1) The Resource Subsystem: The resource subsystem created by P.A. 184 consists of items of significant historical and/or recreational value which rest on the bottomlands of the Great Lakes within Michigan. To protect and promote recreational use of such items, the legislation requires designation of bottomland preserves. Thus, the geographical area and contents included within the boundaries of bottomland preserves represent their primary elements. It is also probable that in time a land base will be established to facilitate use and management of bottomland preserves. If and when established, these would also become components of the resource subsystem. A more detailed description of the land and water components of the resource subsystem follows.

The enabling legislation for bottomland preserves directly provides authorization to regulate the use of the bottomlands within preserve boundaries. Since the use of surface waters above preserves must be considered to protect bottomland areas, it is assumed here that the water base to be managed extends from the water's surface to the bottomland itself. The specific elements within this zone may include shipwrecks (the prime focus of the legislation), geographical formations, and fish. It should be noted that including this entire zone in the resource subsystem increases the complexity of managing the area because not only will the bottomland and bottomland users need to be managed but surface (e.g. waterskiing) and below surface (e.g. fishing) users will have to be considered in management planning.

In the future, part of the resource subsystem may be a land base established to facilitate use and management control over the water base. The land base may be nothing more than an access point for preserve users to enter the water base. It might also eventually include:

- 1) a dive center to service diver needs for information and other services
- 2) an interpretive center to meet the needs of nondivers and divers
- 3) an administrative headquarters

2) The User Subsystem: It is expected that many visitors will be attracted to preserve areas. These visitors will represent a source of considerable income for the local economies in the areas where preserves are designated. The majority of these people will be nondivers using the land and water base for reasons not directly related to the preserve. Examples of these uses include fishing, recreational boating, and commercial transport. Historians and scientists will constitute another user group attracted to the preserve to study its artifacts or other resources. The attractiveness of preserves, especially to nondivers, will depend to some extent upon the facilities and services which are ultimately made available. Finally, as with most parks having significance, there will be an indeterminate number of non-visitors who will benefit from the knowledge that the preserves do exist and that the resources are being protected.

The segment of the population which will be using the preserves most intensely will be scuba divers. Based on a conservative estimate, there are about 40,000 divers in Michigan (Somers, 1980), half of whom are interested in wreck diving. Many of these people regularly visit these areas already and are likely to continue to do so after they are designated as preserves.

3) The Management Subsystem: Public Act 184, while requiring creation of bottomland preserves, is silent with respect to how the state should organize to manage them. To achieve the goals of protecting bottomland resources and providing for their public use, a management organization will have to be developed. The optimal organizational structure for managing preserves will vary depending upon a number of factors including: level of use, types of use, and facilities and services provided. In addition, the management structure will have to reflect the budget available to support it, which in the current economic climate, will likely severely constrain what is possible.

The remaining elements in Figure 1 will not be discussed here but will be introduced and discussed in the next chapter.

Chapter 3

PROBLEMS AND RECOMMENDATIONS

Introduction

In this chapter, specific problems and issues which are expected to be associated with managing Michigan's bottomland preserves will be identified and recommendations will be made for dealing with them. Since at this time Michigan has no designated preserves in operation, it was not possible to develop this chapter from actual case study information. However, we were able to collect and utilize information from numerous sources including:

1. Management experiences and plans from Fathom Five Provincial Park, Tobermory, Canada; California's Underwater Park System; Biscayne National Park, Florida; and from Key Largo Marine Sanctuary, Florida.
2. Information collected from Michigan's diving community over the past several years.
3. Management experiences from Michigan's land based parks and recreation areas.

There is a risk in addressing the substance of this chapter prior to the creation of preserves since it presents a forecast of what problems might occur and what might work to resolve them. Yet, there is a greater risk, in our opinion, in not doing so since many problems can be minimized if anticipated well in advance and others can be more quickly identified and resolved with advance warning that they are likely to arise.

Since it is not possible to anticipate all problems managers are likely to encounter with Great Lakes bottomland preserves, this document will soon become at least partially obsolete. Therefore, it is essential that managers of bottomland preserves remain alert to deal with situations not envisioned at this time. We suggest that more attention than usual be given to monitoring bottomland preserves because: 1) we have only minimal experience in managing such facilities and have much to learn about their effective management; 2) diving involves more risk to participants than many other forms of recreation, and management needs to be especially alert to minimizing risk and to dealing with emergencies which are likely to occur; and 3) shipwrecks are irreplaceable resources and special care must be taken to give them maximum protection.

Problems and Recommendations User Subsystem (2)*

Identification of user groups and their needs. There are two basic groups who will be using bottomland preserves. The first consists of users who come to the area, not for the shipwrecks or other special resources but to fish, water ski, and/or engage in commercial shipping. Managers will need to identify these uses and determine their degree of compatibility with preserve objectives and to regulate these uses in accordance with management's priorities.

* Numbers following headings relate to the schematic of an aquatic park presented in Chapter 2, Figure 1, page 4 .

The second major group of users include individuals attracted to the area because of what the preserve has to offer including shipwrecks, geological formations, and whatever facilities that might eventually be developed. This group of users will consist of divers and nondivers. Management's major task with this user group will be to assess its needs and how to best accommodate them.

Management Subsystem (3)

On-site Management. Currently, no agency provides consistent on-site management of the preserve areas. Managers and enforcement personnel are needed to facilitate the protection of preserve resources, to insure visitor safety, and to provide services which enrich the visitors' experiences.

Recommendation: On-site management should be provided as soon as possible after preserve designation. This management should be provided through a cooperative effort of the Parks Division, Department of Natural Resources and the History Division, Department of State. The structure of this effort should be similar to that which exists at several historic state parks.

Management Goals. Goals and objectives should be defined to assist preserve managers when determining policy.

Recommendation: The goal of Michigan's Great Lakes bottomland preserves as stated in Public Act 184 is to provide "special protection of abandoned property of historical value, or ecological, educational, geological, or scientific value." Continuing objectives that can be extrapolated from this goal are:

- 1) To provide an area for recreation activities centered around the preserve's resource base.
- 2) To provide educational opportunities in a recreational setting to divers and to nondivers.
- 3) To provide for the scientific study and the protection of the resources within the preserve.

Interaction of the Resources (4)

Neutral Interactions. It has long been known that shipwrecks and other irregularities on the bottom of a lake attract fish populations. The fish use the cover for protection, breeding areas, and feeding areas.

Recommendation: None. These interactions affect neither the shipwreck nor the fish in any negative way; it is a completely compatible relationship.

Negative Interactions. Shipwrecks are susceptible to damage by both natural and artificial elements in their environment. Elements that can harm wrecks include ice, turbulent water and water pollution.

Recommendation: Generally no action needs to be taken in the case of natural threats to shipwrecks. However, in the case of a recent sinking which may be harmed by ice, management should take action, where feasible, to minimize potential damage. Similarly, it is important that management monitor water clarity and quality in preserves and take action to control contaminants which are harmful to resources or which reduce the quality of users' experiences. It is probable that research will be needed to identify environmental problems in preserves and methods to minimize them.

Interaction of Users (5)

Conflicting Uses. There are many sources of possible conflict between and within the many user groups interested in the preserve resource base. Several of the group conflicts to be considered are: divers interacting with divers, as on crowded or silty wrecks, boaters and divers, charter boats and private boats, club divers and individual divers, and fishers and divers all at wreck sites.

Recommendation: Problems which arise should be studied on a case-by-case basis before action is taken. Generally, decisions should be made in accordance with previously stated management priorities.

Interactions of Management (6)

Management Plans. The preliminary decisions made by preserve managers will constrain managers of the future. The lack of a consistent policy may reduce compliance in the future, thus reducing management's effectiveness. If managers decide in the first several years of a preserve's existence to delegate their authority to local or other governmental agencies, they will have a difficult time trying to regain this power. This may in the long run reduce chances of achieving management goals.

Recommendation: Action should be taken as quickly as possible to devise a management plan and to implement the plan in a consistent and orderly manner.

Resource Impact on Users (7)

Safety. The resource base of the preserve will be the main attraction for many users. They will be seeking satisfying recreational experiences at the preserve. If the preserve is well managed (but not over regulated) and potentially dangerous situations are mitigated, people will have a more enjoyable and safer experience.

Recommendation: The preserve should be as safe as possible to minimize accidents and injuries received in the preserve, while not interfering greatly with the users' recreational enjoyment of the area.

User Impact on Resource (8)

Cooperation Between Users and Management. Users can have a negative, neutral or positive impact on the resource base. Users can damage the resources in many ways, for example by removing artifacts, planking, or markers. Divers can have positive impacts on the preserve by working with preserve managers. For example, every year diving clubs look for projects to undertake. Their free labor can help build good facilities as well as good relations. Most divers will have a neutral impact on the resource base. They will primarily be interested in exploring and taking pictures, neither destroying the site nor leaving refuse.

Recommendation: Promote neutral or positive impacts on the resource by encouraging divers to engage in cooperative activities with management such as buoying wrecks to reduce anchor damage or promoting an understanding and appreciation for the resources through interpretive programs. Discourage negative impacts through active enforcement of preserve regulations and an active interpretive program.

Management Impact on Users (9)

Visitor Rules. Management has many opportunities to impact users in both positive and negative ways.

Recommendation: The preserve system should have a minimum set of regulations and rules to insure visitor safety and resource conservation. In addition to standard state park regulations, the following specific rules should be seriously considered for adoption for all preserves:

- a) No person shall remove, deface or damage any relic, artifact or natural object on any site of archaeological or historical interest (as stated in P.A. 184).
- b) No person shall dive within the preserve without first registering at the preserve office.
- c) A person found diving within the preserve boundaries shall, on demand of an officer, produce proof of registration.

Diver Safety Guidelines. Park managers should work in cooperation with Michigan scuba divers to establish a set of guidelines for divers to follow when they are in the preserve. If the diving community is involved from the beginning, there will be better cooperation, thus less need for enforcement at the preserve site. Yearly meetings to discuss changes and problems should also be scheduled. We suggest the following safe diving guidelines be considered.

- 1) **Never Dive Alone:** The buddy system is your protection in the event of unexpected problems.
- 2) **Certification:** All divers should be trained and certified by a recognized organization. Trainees must be under the supervision of a certified diving instructor. Shipwreck diving involves special hazards. You should make yourself aware of these and learn how they can be avoided. (Any special hazards should be communicated to divers.).

3) **Use The Dive Flag:** Always display a fully visible and recognized dive flag when in the water. Restrict all diving to within 100 feet (30 meters) of the flag and do not confuse boaters by flying the flag when no activity is underway. In turn, boat operators should use extreme caution when operating near a displayed dive flag.

4) **Unattended Boats:** Never leave a boat unattended, especially when it is used for diving. At least one person must be left on board when the boat is anchored or moored.

5) **Cold Water:** Low water temperatures in these areas can create special hazards. Only experienced divers should exceed 60 feet (18 meters) in depth. Regulator freeze-up can occur, so divers should take appropriate precautions.

6) **Restricted Areas:** Avoid diving in restricted areas such as vessel channels and docking areas. (Details regarding these restricted areas should be made available at the preserve visitor center.)

7) **Night Diving:** Only experienced divers should engage in night diving. Every diver should be equipped with an adequate underwater light and should never exceed 30 feet (10 meters) in depth.

8) **Drugs and Alcohol:** The use of alcohol or drugs when diving can have disastrous effects. Divers should check with knowledgeable physicians before taking prescription drugs during a diving trip. Alcohol and other drugs should be avoided.

Land and Water Base Facilities. To facilitate use of the preserve and preserve resources, it is desirable to establish land and water base facilities. Visitors will need an area of land which they can use to gain access to the water for launching boats, parking cars, etc. A land base can also be used to control access, increase awareness of safe use of facilities, and provide an area for interpretive programming. Facilities in the water base may serve a similar function.

Recommendation: For designated bottomland preserves to be fully utilized, they should have an adjacent land base. This land base, in addition to serving the user, would facilitate management of the underwater area. In some cases, adjacent lands may not be currently available, or those available may not be adequate. In such cases, facilities may be acquired by the Department of Natural Resources or provided by the private sector. An interpretive center is highly recommended at all land base facilities to assist in the promotion of safe diving and resource conservation as well as to educate the public with respect to the maritime history of the Great Lakes. Campgrounds or other overnight facilities may be a major part of the land base if these facilities do not already exist in the park area. Without such educational and camping facilities, nondivers will benefit very little from visiting these public areas.

Recommendation: Shipwrecks should be buoyed with markers designating the water above a wreck as a restricted area and with a buoy or buoys which boats may tie onto so that they do not need to drop their anchors onto the shipwreck. A line should be provided from the base of the anchor buoy to the wreck to facilitate locating the wreck. Studies have shown that diving accidents usually involve divers who are tired. By attaching a line between the anchor buoy and wreck a diver may expend less energy getting to the wreck and thus be less susceptible to accidents.

Education/Information Programs. There will be a need to educate preserve visitors. Users have a more satisfying recreation experience when they understand the resources and history associated with preserves. Divers have a special need for information and a reminder of their previous education on safety aspects of diving. An educational program should reduce damage to resources by increasing people's appreciation of preserves and should also reduce the number of accidents occurring in preserve waters.

Recommendation: The preserves' interpretive programs will promote conservation of the shipwreck resources and diver safety through diver education. There should be interpretive facilities on the land base and in the water when possible. Since most visitors to preserves will be nondivers, interpretive programs are essential for them to gain understanding and appreciation of water-related resources.

Interpretive centers may also house artifacts that would be difficult to protect if they remained in the water. For artifacts brought up, consideration must be given to their preservation. The possibility of underwater trails near shore and interpretive material at wreck sites should be explored and implemented where feasible. The state should explore establishing cooperative interpretive programs with local public and private organizations.

Law Enforcement and Security. As with all parks there will be a need to have trained personnel to enforce park regulations and assist with emergencies.

Recommendation: The Law Enforcement Division, Department of Natural Resources should provide enforcement in preserves with the aid of preserve staff. Local sheriff's departments, the state police, and appropriate federal agencies should also assist with patrols and in emergency situations. Each preserve should develop a set of emergency procedures which should provide for:

- diver rescue
- first aid for injuries and transportation to hospitals for those requiring treatment
- first aid for diving accidents and transportation to hyperbaric facilities

Preserve personnel should be taught how to deal with diving accidents. They should become familiar with symptoms, emergency first aid techniques and where victims should be taken for further treatment. In some areas, local medical personnel may need similar training since they will be the first medical people contacted in accident cases. Divers in a preserve should be informed, before entering the water, who they should contact in case of an emergency. Many lives can be saved with prompt action taken by knowledgeable personnel.

Concessionaire agreements should be signed with charter boat owners operating within the preserve waters. Charter boat skippers will have the responsibility to inform their clients of rules and regulations and to assist in their enforcement. Failure to cooperate might be dealt with by suspending or terminating permission to operate charters in preserves. It is also recommended that the state and charter boat owners cooperate in developing mutually agreeable rules and guidelines for charter operations in preserves.

There should also be an effort to cooperate with the diving community so that individual divers assist with enforcement by the use of peer pressure to preserve shipwrecks and to ensure the safety of fellow divers.

Users Impact on Management (10)

User Feedback. It will be desirable to receive feedback from preserve users to evaluate management practices and to keep the preserves operating with the wants, needs and interests of the user in mind. These preserves have been created to protect resources, provide recreation, and provide for scientific investigation. Whether or not they do provide a satisfactory recreational experience can only be determined by receiving feedback from the users of the facility.

Recommendation: As previously mentioned, there should be an effort to cooperate with the diving community in the formation of diving rules and enforcement. Groups of divers who volunteer to assist with preserve operations such as buoying wrecks should be encouraged to do so and be given needed technical assistance and recognition for their contributions. Agreements can be made with the scientific community to assist with preserve surveys as well as helping to determine the historic value of shipwrecks. A system should be established to encourage both positive and negative feedback to preserve authorities to determine the effectiveness of programs.

Resources Impact on Management (11)

Monitoring of Resource Condition. Another way to evaluate management practices is by receiving feedback from the resources by monitoring their condition over time.

Areas with rapid deterioration due to use may require different management strategies than other areas, but first this deterioration must be detected and the cause(s) identified.

Recommendation: The location of specific resources within preserves should be determined as soon as possible by an inventory/survey of the preserve bottomlands. This inventory should document both the location and condition of these resources. The historical significance of shipwrecks and other resources should be determined with the assistance of the History Division, Department of State.

After locations have been fixed, a monitoring program should be initiated to determine deterioration in the quality of shipwrecks so that management practices can be adjusted. Monitoring should be conducted systematically and observations should be recorded and stored for future reference. The monitoring system should be detailed enough to assess significant changes in the resource including the removal of artifacts from shipwrecks.

Management Impact on the Resource (12)

Classification Guidelines. In order to satisfy the different needs of users, it will most likely be necessary to vary management objectives from preserve to preserve and possibly even within different areas of a single preserve. A system for classifying preserves according to their primary purpose(s) will assist users in locating preserves which best match their interests and will help management to direct and focus its activities.

Recommendation: We propose the following classification guidelines:

Type I - State Aquatic Recreation Areas Consist of areas with few and/or more common resources. Areas would be selected and developed to provide surface and subsurface recreational opportunities while preserving basic resource values. The principal objective in these areas would be to provide recreational opportunities. Although protection of specific resources would not be the primary management objective, the continued presence of such resources would enhance the recreational experience and, therefore, resource protection would be a secondary management objective. A recreational area does not necessarily need to have extensive resources but should be selected for ease of access, potential for development, and proximity to large numbers of potential users. These areas would be designed to serve large numbers of users, would be managed intensively, and development of attractions would be encouraged.

Type II - State Aquatic Parks Consists of areas containing historic, archaeological, ecological or other features. The purpose of the park is to preserve natural and cultural values and to provide an educational opportunity for the users. Improvements are designed to enhance the public's enjoyment of the area while not disrupting the resource. Recreation and preservation would be about equally important in these areas. They would be designed and managed to accommodate moderate use and moderate development would be encouraged.

Type III - State Aquatic Preserves Consists of particularly rare or outstanding cultural, natural, and/or scenic resources. Visitor use and any development should leave the protected resource as undisturbed as possible. These areas would be designed and managed for relatively small numbers of users and development would be restricted to the minimum needed to protect the resource while permitting minimal use.

Management Zones. Within each preserve, it will be necessary to consider segmenting the area to allow the use of differing management techniques. Preserve areas should be zoned to designate where various strategies for management will be used to best achieve management objectives. Such management zoning must be developed taking into consideration the capability of an area to support the identified use.

Recommendation: The desirability and feasibility of establishing management zones and subzones should be investigated for each preserve. If the preserve contains highly varied resources and/or might attract a wide range of users, zoning of the preserve will generally be desirable. The basic zones are listed below. Subzones can be specified as needed within each of the four zones.

Management Zones

Natural Zones - include lands or waters which should be managed to ensure that the natural resources remain largely unaltered by human activities. Development should be absent or limited to dispersed recreational activities.

Historic Zones - include all areas which should be managed to preserve significant cultural resources such as shipwrecks. Physical development in this zone should be the minimum needed for preservation and interpretation of the resource. The limitations established for areas so zoned should not preclude or discourage sightseeing or the study of its cultural features.

Park Development Zones: include areas lacking in significant natural or cultural resources. They will be managed and developed to support intensive public use. Boat ramps, underwater trails, access roads and park building might be developed in this zone.

Special Use Zones: include areas which will be used by other agencies or interests for purposes not permitted in natural, historic, or park development zones. Examples include: shipping channels, private marina developments, and other developments.

Minimizing Negative Impacts. Negative impacts will undoubtedly occur to shipwrecks and other resources. However, management should try to reduce these impacts and maximize diver safety at each site. Examples of negative impact might include the removal of an artifact or the damage done to a shipwreck by the anchor of a dive boat. In the past, wrecks in deep water have been located by dragging an anchor along the bottom until it caught on the hull or railing of a shipwreck known to be in the general vicinity. Each time this occurs splinters of wood are removed from the wreck. Over a period of years the hull may be substantially damaged or the railing torn off.

Recommendations: A number of general and specific recommendations follow for dealing with potentially adverse user impacts on shipwrecks: 1) Shipwrecks should be buoyed - major wrecks should have at least one buoy where boats can be tied to reduce anchor damage to the wreck; 2) Interpretive programs for each preserve should stress resource conservation as well as diver safety; and 3) Preserve personnel should be knowledgeable concerning the historic value of wrecks and artifacts. If some items are easily removable from a wreck and have high value, they should be housed in the interpretive center.

In combination, the last two general recommendations will sensitize operating personnel to the resource, and they, in turn, can better carry the protection/conservation message to the users through formal and informal communications.

Diver Safety. Some shipwrecks have features which may unnecessarily endanger divers. These features may consist of commercial fishing nets tangled in a mast or superstructure; cables or rods which project so that they may catch a diver's air hose; and/or entrapment areas within the ship itself. Entrapment areas are areas with limited access and limited room for a diver to maneuver or areas where an exit is difficult to find.

Recommendation: During the survey of shipwreck resources in each preserve, special notice should be taken of potentially dangerous areas. Modifications should be made in wrecks where needed to reduce the risk of diver accidents. This may include removing fishing nets, cutting off cables and rods, and enlarging, reducing, or creating new entrances into entrapment areas. In some cases, it may be necessary to block access to entrapment areas. This option, in some instances, will be less costly and less destructive of artifacts than modifications to improve access to entrapment areas. Any action taken to reduce hazards should be compatible with the site's purpose and use.

Enhancing Preserve Areas. Some areas that may be designed as preserves may lack the quantity of resources needed to attract or satisfy users, or the resources may rest in relatively deep water. The former is most likely to occur where the state's prime objective in preserve designation is to provide close-to-population recreation opportunities. Both situations present a significant problem for management to deal with.

Recommendation: Adding wrecks and other attractions should be considered in areas lacking sufficient attractions for divers or in preserves where the bulk of the attractions are in deep water (greater than 60 feet). "Salting", the addition of artifacts or other objects of interest, in such cases will provide recreation experiences for less skilled divers, reduce the potential for serious accidents, and reduce visitation to deeper wrecks which will more commonly have the highest historical values.

Inventory of Resources. It has often been stated that to effectively manage an area you must know what resources exist in that area. There is a need to locate and evaluate the condition of resources, especially the shipwrecks. This information may also be used to provide baseline data for the monitoring of impacts on the resources over time.

Recommendation: As complete as possible an inventory of the bottomland preserves should be conducted prior to opening areas to use. The Department of Natural Resources and Department of State personnel should be directly involved in these underwater inventory efforts. Cooperation of the diving community could greatly reduce the time and costs of such a benchmark inventory.

Land Base. To facilitate management and user enjoyment of bottomland preserves, it is desirable to establish a land base as close as feasible to bottomland preserve boundaries.

Recommendation: A study in each area under consideration for bottomland designation should be initiated to identify potential land bases. These studies should be guided by the longer range space requirements for land bases. In other words, the size of the land base should be large enough to handle both immediate needs and those which might arise in the future. If public lands are not currently available to meet the need for a land base, planning should be initiated to acquire needed land for this purpose.

Alternative Funding. Given current economic conditions, it may be difficult to adequately develop bottomland preserve land and water resources through public funding sources. In fiscal 1980-1981, the Department of Natural Resources, like most state agencies has been forced to drastically cut its budget. This has meant a reduction in staff and less money to acquire land and develop facilities.

Recommendation: The state should explore alternative new funding sources to support resource and facility development as well as using existing sources of funds for these purposes. Local units of government may be able to contribute to the development efforts; however, the private sector may also be a source of potential support. For example, concessionaires might be willing to develop and operate a dive center on publicly acquired lands. Interpretive centers might be funded through private donations, for example through cooperation with the Besser Foundation in the Alpena area. Finally, "tight" budgets alone do not justify not allocating any public funds to preserves. Bottomland preserve spending options should be entered into the budget planning process along with other spending options.

Interactions and Impacts between the System and the Environment(13)

Interagency Cooperation. There will be a need for preserve managers to cooperate with other agencies and private property owners.

Recommendation: Preserve managers should seek cooperative arrangements with local, federal, and other state agencies, as well as the private sector, to efficiently manage preserves and to minimize conflicts. Jurisdictional disagreements and responsibilities should be resolved as soon as possible.

Tourism Potential. Aquatic parks have significant tourism potential. The parks may provide a theme to an otherwise bland recreational area or increase the use of a popular area. However, because bottomland preserves are new, many potential users may not be aware that they exist. Others may be attracted to a preserve with expectations which the preserve cannot presently fulfill. Consequently, promotion and other communication problems need to be addressed.

Recommendation: Park management should cooperate with the State Travel Bureau, chambers of commerce, and other organizations to promote use of the preserves. Private businesses and organizations in the community which will directly benefit from the preserve visitors should be encouraged to work together to promote their area and contribute to preserve development whenever possible. It is especially desirable that potential visitors be made aware of the facilities and services available at designated preserves to avoid ill feelings. Nondivers especially need to be informed that the bottomland preserves currently do not offer much of anything for them to see or do.

Funding Constraint. The acquisition of land and funds for management of the preserves will in large part determine implementation of these guidelines. There may be difficulties in funding for some time.

Recommendation: As mentioned previously, alternative new funding methods should be seriously considered if state funds from existing sources are not immediately available for preserves.

Chapter 4

SUMMARY AND FUTURE NEEDS

Significant Problems and Possible Solutions

With this report we have pointed out what we see as problems that management is likely to encounter in the operation of bottomland preserves and have made recommendations for dealing with them.

One of the first problems that should be addressed is setting up on-site management of the preserves. We recommend that this be a cooperative effort with clearly defined goals and objectives which will be effective as soon as possible. Managers should be active in all phases of preserve use, including interpretation, promotion, and law enforcement. A land area should be acquired at each preserve to serve as a base of operations for managers as well as an area for visitors to receive information about the preserve.

We feel that preserves should be classified according to their major intended use. The three types of classification recommended are Aquatic Preserve, Aquatic Park, and Aquatic Recreation Area. We further believe that each area should then be divided into management zones with varying degrees of development and use allowed in each zone. The major development encouraged in the water base is the buoying of wrecks to prevent anchor damage and to reduce diver fatigue when swimming to the wrecks thereby promoting diving safety. In some areas, the additions of shipwrecks and other attractions should be considered to provide more and safer recreation opportunities and to relieve use pressure on deeper, more historically valuable shipwrecks.

To facilitate operations in Michigan's newly created aquatic preserve system it will be necessary for the state to take charge of the management of the preserves. A joint management organization involving the History Division, Department of State, and the Parks Division and Law Enforcement Division, Michigan Department of Natural Resources should be formed. This model is currently employed for some land based parks.

Cooperation is another common theme of our recommendations. We perceive that there are excellent opportunities for state agencies to develop productive cooperative efforts with other units of government, the diving community, and private enterprise on issues such as enforcement, buoying of wrecks, and fund raising. The state should not, however, step away from its obligations to all the citizens of the state in developing these cooperative relationships.

Possibly the most pressing issue that needs to be addressed is that of developing accident management plans for each preserve. The typical diver is relatively young, and diving, especially shipwreck diving, involves greater potential for accidents than many other forms of recreation. In combination, these facts insure that diving accidents will occur in preserves and proper handling of accident victims can greatly minimize the risk of death and/or serious injury. In this same vein, it is recommended that the state develop plans to increase diver safety in preserves and seek expert legal counsel on its liability in the event of accidents.

A program of diver registration has also been recommended to reduce the number of potential diving accidents. The main purpose of the registration is to provide for an exchange of information. Divers will be made aware of dangerous conditions within the preserve, and managers will have an idea of who is using the preserves and how much and what type of use is occurring.

We also stressed in several of our recommendations the desirability of developing a communications strategy. On-site interpretive programming is an essential ingredient to a communications strategy. Interpretation would serve the dual objective of enhancing visitor satisfaction and promoting management objectives. Since bottomland preserves are a new concept in Michigan and are receiving considerable attention in the news media, it is especially important that potential visitors be informed of what to expect should they visit a preserve. The nondiver especially should be made aware that preserves currently offer little of interest to the nondiving public.

Finally, we have reviewed our long list of recommendations to establish what we feel to be those of greatest importance and urgency. They are as follows:

- 1) Develop accident management plans for each preserve. This should involve the preserve superintendent and local rescue and medical personnel.
- 2) Establish a communications program, especially for the diving community. This could include the formation of an advisory council consisting of diving representatives and local officials. Both recreational and historical interests should be represented in the advisory council(s).
- 3) Develop a time-table of park development activities. This should be drawn up by the preserve managers to assist with setting yearly priorities at each preserve. Items that should be contained in the time-table include: expected date of land base acquisition, on-site management, interpretive center construction, and buoying wrecks.
- 4) Acquire adjacent land bases and establish on-site management to coordinate efforts for safety, preservation and interpretation. This should include placing buoys on wrecks to reduce anchor damage and increase diver safety.
- 5) Set up a diver registration system in each preserve to promote an information exchange which should reduce accident potential.

Future Needs

It is difficult to say exactly what future needs will exist for preserves. However, we see several areas where research may assist preserve managers to better cope with the future. For the resource base, carrying capacities of dive sites should be determined, activities causing site deterioration should be defined, and schemes devised to counteract this deterioration.

On the people side of preserves, new methods of interpretation may be needed to present the aquatic environment and artifacts located there to land bound visitors. The use of underwater walkways or observation chambers, as well as more conventional glass bottom boats, may be explored so that nondivers, including entire families, may view an aquatic park's resources. At the other end of the user spectrum, there is a place for innovative techniques in underwater interpretation for divers so that divers may better appreciate the resources that they are viewing. Encouraging the use of the preserve by scientists and educators should also be considered. The extent of their scientific and educational value is yet unknown and could be considerable.

Managers will have to adjust to a changing environment, changes in users and their wants, and changes occurring within the resource base. The state should devise methods to detect these changes and institute a means of updating these guidelines to reflect management experiences at specific preserves.

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APPENDIX I

ACT NO. 184
PUBLIC ACTS OF 1980
APPROVED BY GOVERNOR
JULY 2, 1980

STATE OF MICHIGAN
80TH LEGISLATURE
REGULAR SESSION OF 1980

Introduced by Rep. Rocca

ENROLLED HOUSE BILL No. 4601

AN ACT to amend the title and sections 1, 2, and 3 of Act No. 173 of the Public Acts of 1929, entitled "An act to protect and preserve, and to regulate the taking of aboriginal records and antiquities within the state of Michigan, and to provide penalties for the violation of this act," being sections 299.51, 299.52, and 299.53 of the Compiled Laws of 1970; and to add sections 1a, 4a, 4b, 4c, 4d, 4e, 4f, 4g, and 4h.

The People of the State of Michigan enact:

Section 1. The title and sections 1, 2, and 3 of Act No. 173 of the Public Acts of 1929, being sections 299.51, 299.52, and 299.53 of the Compiled Laws of 1970, are amended and sections 1a, 4a, 4b, 4c, 4d, 4e, 4f, 4g, and 4h are added to read as follows:

TITLE

An act to protect and preserve, and to regulate the taking of, aboriginal records and antiquities within this state; to preserve abandoned property of historical or recreational value on the bottomlands of the great lakes and regulate the salvage of abandoned property of historical or recreational value; to designate and regulate great lakes bottomland preserves; and to prescribe penalties.

Sec. 1. (1) The state reserves to itself the exclusive right and privilege, except as provided in this act, of regulating, exploring, excavating, or surveying, through an authorized officer, agent, or employee, all aboriginal records and other antiquities, including mounds, earthworks, forts, burial and village sites, mines or other relics and abandoned property of historical or recreational value found upon or within any of the lands owned by or under the control of the state.

(2) The state reserves to itself a possessory right or title superior to that of a finder to abandoned property of historical or recreational value found on the state owned bottomlands of the great lakes. This property shall belong to this state with the administration and protection vested in the department of natural resources and the secretary of state.

Sec. 1a. As used in this act:

(a) "Abandoned property" means an aircraft; a watercraft, including a ship, boat, canoe, skiff, raft, or barge; the rigging, gear, fittings, trappings, and equipment of an aircraft or watercraft; the personal property of the officers, crew, and passengers of an aircraft or watercraft; and the cargo of an aircraft or watercraft which have been deserted, relinquished, cast away, or left behind and for which attempts at

reclamation have been abandoned by owners and insurers. Abandoned property also means materials resulting from activities of historic and prehistoric Indians.

(b) "Bottomlands" means the unpatented lake bottomlands of the great lakes.

(c) "Great lakes" means lakes Erie, Huron, Michigan, St. Clair, and Superior.

(d) "Great lakes bottomlands preserve" means an area located on the bottomlands of the great lakes and extending upward to and including the surface of the water, which is delineated and set aside by rule promulgated pursuant to Act No. 306 of the Public Acts of 1969, as amended, being sections 24.201 to 24.315 of the Michigan Compiled Laws, for special protection of abandoned property of historical value, or ecological, educational, geological, or scenic features or formations having recreational, educational, or scientific value. A preserve may encompass a single object, feature, or formation, or a collection of several objects, features, or formations.

(e) "Historical value" means value relating to, or illustrative of, Michigan history, including the statehood, territorial, colonial, and historic and prehistoric Indian periods.

(f) "Recreational value" means value relating to an activity which the public engages in, or may engage in, for recreation or sport, including scuba diving and fishing.

Sec. 2. A deed, as provided by this act, given by this state, except state tax deeds for the conveyance of any land owned by the state, shall contain a clause reserving to this state a property right in aboriginal antiquities including mounds, earthworks, forts, burial and village sites, mines, or other relics and also reserving the right to explore and excavate for the aboriginal antiquity by and through this state's authorized agent and employee. This section shall apply only to the sale of tax reverted land. The commission of natural resources with the approval of the secretary of state may waive this reservation when conveying platted property and when making conveyances under Act No. 193 of the Public Acts of 1911, as amended, being sections 322.481 to 322.484 of the Michigan Compiled Laws.

Sec. 3. A person, either personally or through an agent or employee, shall not explore or excavate an aboriginal remain covered by this act upon lands owned by the state, except under a permit issued by the director of the department of natural resources with written approval of the secretary of state. A permit shall be issued without charge. This section shall not apply to the Mackinac Island state park commission on lands owned or controlled by the commission.

Sec. 4a. (1) Except as provided in section 4b, a person shall not recover, alter, or destroy abandoned property which is in, on, under, or over the bottomlands of the great lakes, including those within a great lakes bottomlands preserve, unless the person has a permit issued jointly by the secretary of state and the department of natural resources pursuant to section 4c.

(2) A person who recovers abandoned property without a permit when a permit is required by this act shall transmit the property to the secretary of state and the recovered property shall be the property of the secretary of state.

(3) A person shall not remove, convey, mutilate, or deface a human body or the remains of a human body located on the bottomlands of the great lakes.

Sec. 4b. (1) A person may recover abandoned property outside a great lakes bottomlands preserve without a permit if the abandoned property is not attached to, nor located on or in, a sunken aircraft or watercraft and if the abandoned property is recoverable by hand without mechanical or other assistance.

(2) A person who recovers abandoned property without a permit pursuant to subsection (1) shall file a written report within 30 days after removal of the property with the department of natural resources or the secretary of state if the property has been abandoned for more than 30 years. The written report shall list all recovered property which has been abandoned for more than 30 years and the location of the property at the time of recovery. For a period of 90 days after the report is filed, the person shall make the recovered property available to the department of natural resources and the secretary of state for inspection at a location in this state. If the secretary of state determines that the recovered property does not have historical value, the secretary shall release the property to the person.

Sec. 4c. (1) A permit shall authorize a person to recover abandoned property located on or in a sunken aircraft or watercraft.

(2) A person shall file an application for a permit with the department of natural resources on a form prescribed by the department of natural resources. The application shall contain all of the following information:

(a) The name and address of the applicant.

(b) The name, if known, of the watercraft or aircraft on or around which recovery operations are to occur and a current photograph or drawing of the watercraft or aircraft, if available.

(c) The location of the abandoned property to be recovered and the depth of water in which it may be found.

(d) A description of each item to be recovered.

(e) The method to be used in recovery operations.

(f) The proposed disposition of the abandoned property recovered, including the location at which it will be available for inspection by the department of natural resources and the secretary of state.

(g) Other information which the department of natural resources or the secretary of state considers necessary in evaluating the request for a permit.

(2) The department of natural resources and the secretary of state shall approve or disapprove an application for a permit within 30 days after the date the properly completed application is filed with the department of natural resources. The department of natural resources and the secretary of state may approve an application conditionally or unconditionally. A condition to the approval of an application shall be in writing on the face of the permit. The department of natural resources and the secretary of state may impose a condition which accomplishes 1 or more of the following:

(a) Protection and preservation of the abandoned property to be recovered, and the recreational value of the area in which recovery is being accomplished.

(b) Assurance of reasonable public access to the abandoned property after recovery.

(c) Compliance with rules applying to activities within a great lakes bottomlands preserve.

(3) The department of natural resources shall approve an application unless the department determines that the abandoned property to be recovered has substantial recreational value in itself or in conjunction with other abandoned property in its vicinity underwater, or the recovery of abandoned property would not comply with rules applying to a great lakes bottomlands preserve.

(4) The secretary of state shall approve the application unless the secretary of state determines that the abandoned property to be recovered has substantial historical value in itself or in conjunction with other abandoned property in its vicinity. If the property has substantial historical value, the secretary of state, pursuant to subsection (2), may impose a condition to the approval of the application requiring the applicant to turn over recovered property to the secretary of state for the purpose of preserving the property or permitting public access to the property. The secretary of state may authorize the display of the property in a public or private museum or by a local unit of government. In addition to the conditions authorized by subsection (2), the secretary of state may provide for payment of salvage costs in connection with the recovery of the abandoned property.

(5) A person aggrieved by a condition contained on a permit or by the denial of an application for a permit may request an administrative review of the condition or the denial by the director of natural resources or the secretary of state, whichever department disapproves the application or imposes the condition. A person shall file the request for review with the appropriate department within 90 days after the permit application is submitted to the department of natural resources. An administrative hearing conducted pursuant to this subsection shall be conducted under the procedures set forth in chapter 4 of Act No. 306 of the Public Acts of 1969, as amended, being sections 24.271 to 24.287 of the Michigan Compiled Laws. If neither department approves the application and an administrative review is requested from each department, the appeals shall be combined upon request and a single administrative hearing shall be conducted. The director of natural resources and the secretary of state shall issue jointly the final decision and order in the case.

Sec. 4d. (1) Within 10 days after recovery of abandoned property, a person with a permit issued pursuant to section 4c shall report the recovery in writing to the department of natural resources. The person recovering the property shall give authorized representatives of the department of natural resources and the secretary of state an opportunity to examine the property for a period of 90 days after recovery. Recovered abandoned property shall not be removed from this state without written approval of the department of natural resources and the secretary of state. If the property is removed from the state without written approval, the attorney general, upon request from either agency, shall bring an action for the recovery of the property.

(2) If the secretary of state determines that the recovered abandoned property does not have historical value, the secretary of state shall release the property to the person holding the permit.

Sec. 4e. (1) The department of natural resources shall establish great lakes bottomlands preserves. Within each established great lakes bottomland preserve, the department of natural resources may establish

rules, promulgated pursuant to Act No. 306 of the Public Acts of 1969, as amended, which govern access to, and use of a great lakes bottomlands preserve. These rules may also regulate or prohibit the alteration, destruction, or removal of abandoned property, features, or formations within a preserve. A permit shall not be issued pursuant to section 4c which is not in compliance with the rules applying to a great lakes bottomlands preserve.

(2) A preserve shall be established by emergency rule pursuant to Act No. 306 of the Public Acts of 1969, as amended, if it is determined by the director of the department of natural resources that this action is necessary to immediately protect an object or area of historical or recreational value.

(3) Great lakes bottomlands preserves shall be limited in total area to not more than 5% of the great lakes bottomlands within this state.

Sec. 4f. The department of natural resources and the secretary of state may promulgate rules pursuant to Act No. 306 of the Public Acts of 1969, as amended, necessary to implement this act.

Sec. 4g. Sections 4a to 4d shall not be considered to impose the following limitations:

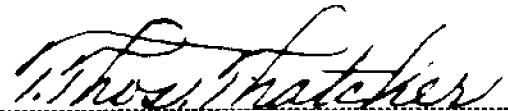
(a) A limitation on the right of a person to engage in diving for recreational purposes in and upon the great lakes or the bottomlands of the great lakes.

(b) A limitation on the right of the department of natural resources or the secretary of state to recover, or to contract for the recovery of, abandoned property in and upon the bottomlands of the great lakes.


(c) A limitation on the right of a person to own either abandoned property recovered before the effective date of this section of abandoned property released to a person after inspection.

Sec. 4h. A person who violates sections 4a to 4e or rules promulgated under this act is guilty of a misdemeanor.

This act is ordered to take immediate effect.



.....
Clerk of the House of Representatives.



.....
Secretary of the Senate.

Approved

.....
Governor.

