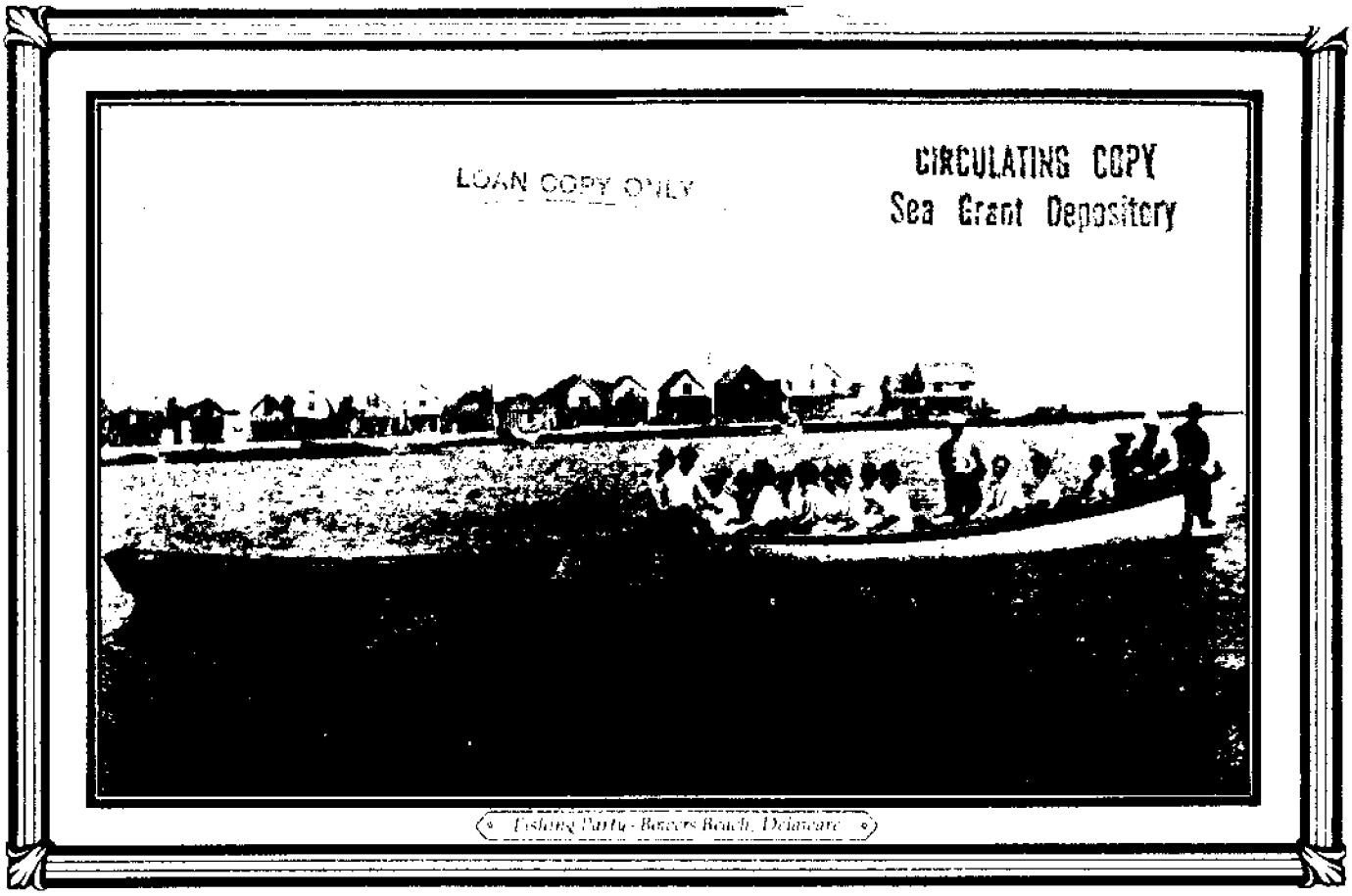


Fishing Party - Bowers Beach, Delaware

Report of the Governor's Task Force on Marine Recreation in Delaware

September 1980

Report of the Governor's Task Force on Marine Recreation in Delaware

Presented to
The Honorable Pierre S. du Pont
Governor of the State of Delaware
September 1980

Published by the
Marine Advisory Service
Delaware Sea Grant College Program

College of Marine Studies
University of Delaware
Newark and Lewes, Delaware

Production Credits

Typing:	**Diane Parseghian**
Typesetting:	**Pamela Donnelly**
Photography:	**Pam Palinski**
Editing:	**Jan Hardin**
Graphics and Design:	**Kathy Maas**

Cover photo courtesy of the Caley Historical Postcard Collection.

Fishing Party in Bowers Beach, Delaware
(c. 1908)

UNIVERSITY OF DELAWARE
LEWES, DELAWARE
19958

SEA GRANT COLLEGE PROGRAM
MARINE ADVISORY SERVICES
COLLEGE OF MARINE STUDIES
CANNON BUILDING
PHONE 302-645 4235

21 August 1980

The Honorable Pierre S. du Pont
State Office Building
820 French Street
Wilmington, DE 19801

Dear Governor du Pont:

I am pleased to submit to you the Task Force Report on Marine Recreation. This report was prepared pursuant to your request in August of 1978. Your original charge to us was to review Delaware's marine recreation problems and its needs and to produce a plan of action, coordinated between the public and private sectors, that will encourage the economically and environmentally sound development of needed facilities and services.

All Task Force members enthusiastically accepted this challenge and have produced a report which I feel is both comprehensive and realistic. The report has several major objectives. One is to assess the availability of marine recreation opportunities for Delawareans. Another is to detail the economic benefits this industry provides to the State. A third is to stimulate the marine recreation and tourism industry within Delaware. To realize these objectives, the Task Force has formulated a set of recommendations and resolutions that, if implemented, can beneficially assist the marine recreation industry in Delaware.

In sum, Governor du Pont, the Task Force's hope is that this report meets the charge you laid before us and serves as a guide in advancing quality marine recreation opportunities for all the citizens of Delaware. We would be remiss to believe that this report alone will insure that such a laudable goal will be achieved. There is, in the opinion of all Task Force members, much more that needs to be done beyond listing recommendations and suggesting resolutions. Because of this, the Task Force has agreed to remain intact, at your request, to provide you and the General Assembly with any additional advice that you might require on those matters affecting marine recreation in the State.

The Task Force gratefully acknowledges all those individuals who took the time to meet with us, provide information, and assist in the completion of this report. Without such assistance, this report would not have been possible.

Sincerely,

James M. Falk

James M. Falk
Task Force Coordinator

Acknowledgments

There are many individuals who deserve a special note of thanks for helping to complete this report. In addition to all the agency officials from the state's Department of Natural Resources and Environmental Control who provided timely information, we also owe a special thanks to the U.S. Army Corps of Engineers for providing much needed data on dredging and federal permitting.

We also could not have completed this report without the full cooperation of individuals from private sector marine recreation businesses. Many individual businesses were called upon to answer questions and supply economic information. They did so without faltering. This combination of public sector and private sector cooperation was a primary foundation on which this final report is based.

Thanks must be extended to those people at the University of Delaware's College of Marine Studies who supported the effort with "behind the scenes" typing, editing, composition, artwork, and layout of this report. Without their loyal assistance, the task of putting together this report would have been impossible.

Finally, we are grateful to the large number of avid marine recreationists in the state who were consulted on an informal basis and who provided much information useful to this study. We sincerely hope that this report will lay the groundwork for improved access to marine recreation facilities and services in the future.

Table of Contents

Preface

The need for a task force on marine recreation was identified at the Governor's Conference on Tourism and Recreation that was held November 15-16, 1977, in Dover. At this conference, participants discussed the problem of coordinating efforts between the public and private sectors in developing facilities for marine recreation. They advised establishing a task force to examine the situation and recommend improvements. As a result, the Governor's Task Force on Marine Recreation was formally established by Governor du Pont on August 8, 1978.

The goal of the Governor's Task Force has been to review the state's marine recreation problems and its needs and to produce a plan of action, coordinated between the public and private sectors, that will encourage the economically and environmentally sound development of needed facilities and services.

The major marine recreation problems identified at this 1977 conference were primarily related to boating and saltwater fishing activities. Most of the facilities and services necessary to support these activities (launch ramps, marinas, charter vessels and head boats, fishing piers, navigation channels, and marine police) have been examined by the Task Force. While this report does not cover all the marine recreation activities that occur in the state, it does examine those with the most critical problems. The Task Force recognizes that most individuals who participate in marine recreation activities in Delaware are beach users. However, those issues associated with beach use (such as beach access and conflicts among beach users) have not been identified as critical at the present time.

Before examining the role of marine recreation in Delaware, the Task Force developed the following series of broad policy guidelines to provide a focus for issuing specific recommendations:

1. Adequate marine recreation facilities and services should be available to all citizens of Delaware.
2. Stimulating the recreation and tourism industry will improve economic benefits to local areas and to the state.
3. Insofar as possible, marine recreation facilities should be provided by the private sector. Where private sector development does not meet existing demand, public facilities should be developed, but in a way that they do not compete unfairly with private services.

Members of the Governor's Task Force on Marine Recreation

The Honorable Robert J. Berndt
Delaware State Senator

Kenneth Bessinger
Delaware Coastal Management Program
Office of Management, Budget and Planning

The Honorable John M. Burris
Delaware State Representative

The Honorable Richard S. Cordrey
Delaware State Senator

Roland Derrickson
Sussex County Planning and Zoning Department

Kenneth Dodunski
City of Wilmington Planning and Development Department

Mr. and Mrs. Jack Donovan
Donovan's Dock in Bowers Beach
Delaware Watermen's Association

Martha Dunkle
Delaware City Marina

James Falk
Sea Grant Marine Advisory Service
University of Delaware
(Task Force Coordinator after May 1979)

Thomas P. Hagy
Fairweather Marine, Inc.
Delaware Marine Trades Association

Paul Jensen
Sea Grant Marine Advisory Service
University of Delaware
(Task Force Coordinator to May 1979)

Charles A. Lesser
Fisheries Section
Division of Fish and Wildlife
Department of Natural Resources and Environmental Control

Wendy Lindquist
Delaware State Travel Service
Division of Economic Development
Department of Community Affairs and
Economic Development

Charles D. McCombs II
New Castle County Department of Parks and Recreation

William Moyer
Wetlands Section
Division of Environmental Control
Department of Natural Resources and Environmental Control

Joseph O'Neill
Kent County Parks and Recreation Commission

H. Dale Parsons
Fisherman's Wharf in Lewes
Delaware Watermen's Association

Barbara Porter
South Shore Marina, Inc.

J. Patrick Redden
Technical and Community Recreation Services Section
Division of Parks and Recreation
Department of Natural Resources and Environmental Control

Alan Silverman
New Castle County Department of Planning

George W. Stewart, Jr.
Delaware Boating Administration
Fisheries Section
Division of Fish and Wildlife
Department of Natural Resources and Environmental Control

Al Thompson
Kent County Planning Department

Sterling VanRees and Doug VanRees
Taylor Marine Center
Delaware Marine Trades Association

James C. Warren
Delaware Boating Council

Clifford M. Worthington
Delaware Boating Council

Joseph T. Wutka, Jr.
Division of Highways
Department of Transportation

Introduction

Marine recreation opportunities and services contribute to a sizeable recreation and tourism industry in Delaware, primarily because Delaware is fronted by more than 250 miles of shoreline, including the Delaware River and Bay, the Atlantic Ocean, and the inland bays. Also important is Delaware's central location within the Washington, D.C.-New York City megalopolis, which makes it easily accessible to over 21 million people.

It is difficult to place a dollar value on the economic benefits associated with the vast marine recreation market, since there are many indirect as well as direct beneficiaries. However, considering that more than 56 million people involved in boating in this country spend over $6.5 billion a year at the retail level, and that more than 33 million sportfishermen spend over $5 billion annually, one begins to see the magnitude of this economically-beneficial sector of the recreation market.

In Delaware, the dollars associated with boating and sportfishing account for only a small portion of expenditures nationwide and therefore have not been well-defined. However, there are over 30,000 registered boats in the state and it is estimated that an equal number of boats from out of state use Delaware's waters for fishing, waterskiing, or cruising during the summer months. State revenue from boating activity is generated through such sources as boat registration fees, ramp certificates for out-of-state boats, and the state tax on marine fuel. In addition, the private sector generates income through the sale of boats and related equipment, marina operations, and boat repair and maintenance services.

The extent of sportfishing in Delaware was estimated through a 1976 survey conducted by the Department of Natural Resources and Environmental Control's Division of Fish and Wildlife. Participation in recreational activities is frequently expressed in terms of "person-days" (one person's participation in a certain activity for a day is a "person-day") and "person-trips" (one person's trip to a certain location is a "person-trip," e.g. if five people travel to Delaware in one car, they have made five person-trips). Thus in 1976, private boaters fished 436,133 person-days; an estimated 163,483 person-days of fishing took place on charter vessels and head boats; and about 226,129 person-days were spent fishing from shore or piers. Researchers have estimated that an average fisherman spends between $15 and $25 for a day of fishing. Therefore, the economic impact of sportfishermen is quite large in this state.

Sportfishermen comprise a large segment of the Delaware summer tourist trade and tourism is the state's third largest industry. According to the recently completed *Delaware Tourism Policy Study*, more than 12 million "person-trips" to Delaware were recorded in 1977. These people spent more than $300 million during those visits.

A major portion of Delaware's tourist trade is based on outdoor recreation. The Delaware Tourism Policy Study indicated that 53 percent of those 12 million person-trips were for the purpose of outdoor recreation and that water-based recreation was the major attraction for these visitors.

Considering these facts, it is easy to see the economic importance of the marine recreation industry to the people of Delaware. This, alone, justifies the Task Force's efforts.

The Economics of Marine Recreation in Delaware

Marine recreation is not merely an economic venture, but an important human need. Because of this dual nature, not all aspects of marine recreation are, or should be, determined on the basis of economics. Nevertheless, many of the existing concerns about marine recreation relate to the allocation of financial resources. It is therefore useful to examine the sources of and demands for state revenues produced by marine recreation. This is not an easy task. It is nearly impossible to obtain truly accurate comparisons of costs and revenues because of difficulties in obtaining data and in determining what to include. The following analysis is an attempt to bring together the information that has been presented to the Task Force.

State Costs Associated with Marine Recreation

The Division of Fish and Wildlife spends approximately $500,000 per year on marine fisheries management. This includes providing public access to tidal waters. Of the $500,000 (half of which is provided by federal funding programs such as taxes on certain sports equipment), $150,000 is used for facility operation and maintenance; $150,000 is spent on equipment, travel, marine fisheries research, surveys, and administration; and approximately $200,000 goes to major facility renovations.

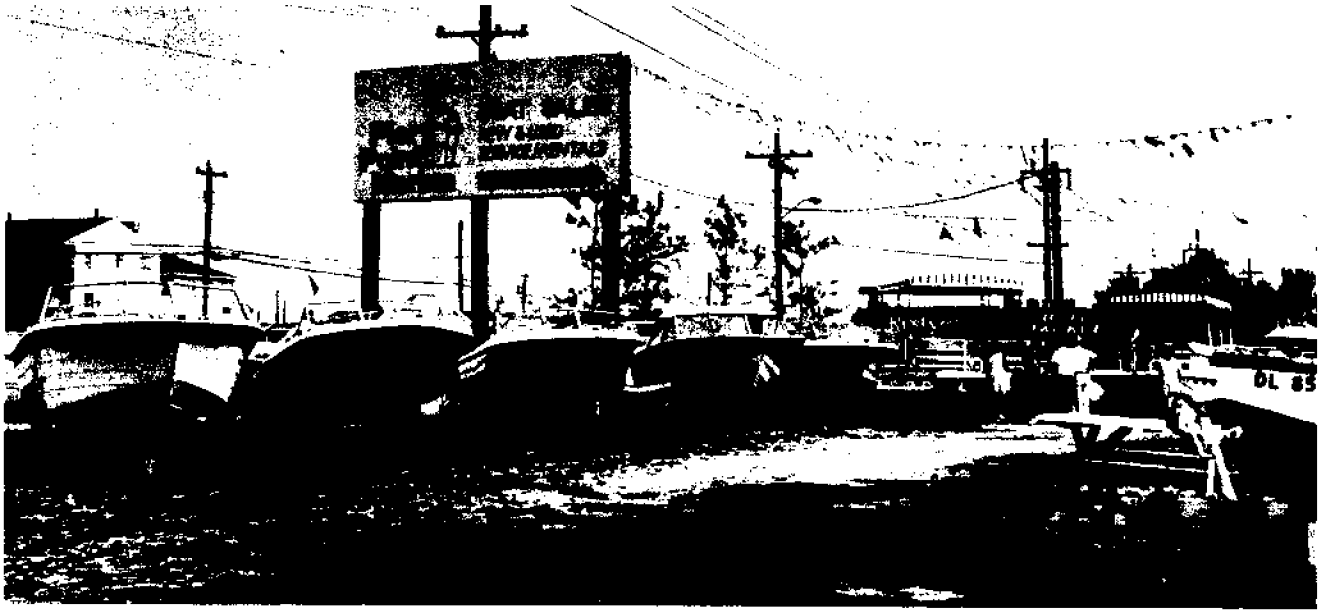
A reasonable estimate of actual state expenditures by the Division of Fish and Wildlife for marine access facilities (primarily boat ramps) is $100,000. Of this, $40,000 is revenue from the sale of freshwater fishing licenses and $25,000 is from the boat ramp certificates purchased by nonresident boatowners who use Delaware's state ramps. The remaining $35,000 is allocated from the General Fund.

The Capital Improvement Program (CIP) provides an average of $100,000 to $150,000 for marine recreation annually, depending on the magnitude of the approved projects. The remaining funds, about $250,000, are derived from Federal Aid to Fisheries monies (Dingell-Johnson Act). This federal act places a 10 percent tax on sportfishing equipment. In turn, these funds are distributed to states based on the number of licensed fishermen in each and the size of the state. The funds are used by the state agency in charge to acquire, develop, and improve sportfishing access sites and to pursue fishery research. It is difficult to get more precise figures because marine recreation services are not provided for on a separate budget, but are figured in with several other activities. However, if yearly capital improvements are counted with direct state expenditures, the estimated state cost is $250,000 per year.

The Marine Police (Division of Fish and Wildlife, Fisheries Section) were budgeted approximately $350,000 in fiscal year 1980. The state General Fund provided this sum. Even with this funding, the Marine Police have been understaffed by two officers according to the state's 1974 Boat Act.

Maintenance dredging is also a cost of recreational boating. The cost of state dredging activities can be estimated from the yearly cost of operating the state dredge about $250,000. It is difficult to include the state's share of costs on the infrequent federal dredging projects since most of the money in these cases is used to make spoil disposal sites available.

It is not easy to provide a detailed breakdown of the costs incurred by the Division of Parks and Recreation. However, costs associated with the operation and maintenance of Delaware's coastal state parks can be identified. There are



Boat sales are easily quantified sources of marine recreation income.

three state parks that can be included within this designation: Cape Henlopen, Delaware Seashore, and Holts Landing/Fenwick Island. In addition to beach areas, each park also contains marine recreational facilities ranging from piers to bathhouses, boat ramps, and marinas that provide public access to Delaware waters.

The Division of Parks and Recreation estimated that 1977 expenditures for operations and maintenance at these three parks amounted to approximately $650,000. In addition to yearly operations and maintenance costs, certain Capital Improvement Program funds are budgeted each year for recreational facility development. It is of interest that the Division, in its land acquisition program, generally selects lands for their ability to generate revenue that helps support routine operation and maintenance at state parks.

The combined cost of the state services previously mentioned to support marine recreation in Delaware is estimated to be $1,500,000 per year.

State Income Associated with Marine Recreation

The state income derived from marine recreation is difficult to accurately assess because much of it comes from indirect sources.

However, one direct source of income, totaling $283,000 in 1979, is boat registration fees. Additionally, in that same year approximately $25,000 was obtained from the sale of ramp certificates for out-of-state boats. Another direct source of revenue is the state's marine fuel taxes. Delaware does not keep a separate account of marine fuel tax collections, but the Boating Industry Association (BIA) in 1977 conducted a national study of fuel usage and tax revenues and found that in Delaware, marine fuel consumption is over 5.5 million gallons per year. At a state tax rate of 9 cents per gallon, more than $500,000 per year in state taxes is received from Delaware-registered boats. A 1976 survey of boaters registered in Delaware determined that the average fuel usage was 284 gallons per boat. If this fuel consumption rate held for 1978, it can be estimated that the 29,103 registered boats contributed $742,973 to the state through the 9 cents per gallon tax. The actual figure is probably much higher because of the heavy use of Delaware's waters by out-of-state boaters.

Income generated through the operation of Delaware's state parks is based primarily on user fees, which represent 65 percent of the total operation and maintenance budget for the parks. User fee revenues are then dedicated to state park operation and maintenance to relieve state General Fund dollars. A 1977 estimate of user fee revenue generated from the three coastal parks was $623,000 ($609,000 of this total was generated at Cape Henlopen and Delaware Seashore). The $623,000 is approximately 75 percent of the $819,000 generated that year from all Division of Parks and Recreation holdings.

The importance of the state's coastal parks cannot be stressed enough. Income produced at Cape Henlopen and Delaware Seashore helps to sustain the entire state park system throughout the year. The 1979 gross income at Indian River State Marina alone, within Delaware Seashore State Park, is

estimated to be $148,600 (concessionaire leases, $16,700; dock and pier rental, $36,500; fuel sales, $96,400).

State revenues are generated indirectly in the following ways. Several studies have estimated that a saltwater fisherman spends about $25 per day on food, beverages, overnight accommodations, fuel, gear, and bait. If it is assumed that $10 of this $25 is spent on fuel (where we have already counted the tax), this leaves $15 that is spent on other items during a fishing day. The Division of Fish and Wildlife estimated that in 1976, there were 436,133 person-days of saltwater fishing in Delaware. At $15 per day, this yields $6.5 million per year that flows into local and state economies.

Additionally, revenue is acquired from state park users. Visitor attendance at the three state coastal parks in 1978 was estimated to be 1,884,300. In addition to over $600,000 in direct user fees generated, expenditures for food, overnight accommodations, fuel, and other items were also necessary. If we can assume that each park visitor spends an additional $10 per day while visiting coastal parts of Sussex County, the total amounts to $18.8 million per year. Approximately two-thirds of all revenue from coastal park users comes from out-of-state visitors.

Delaware state government revenues from income, mercantile, corporate, and other taxes associated with sportfishing and park visitation can be roughly estimated at 6 percent of the total income from those activities, $6.5 million plus $18.8 million, or close to $1.5 million per year.

Table 1 compares major state marine recreation expenditures and revenue. It is evident, that even before income, mercantile, and other taxes are included, state marine recreation expenditures are still less than state marine recreation income.

It is difficult to accurately assess the economic importance of marine recreation to the state. However, it does provide a major source of income for the state treasury. In addition to the many individuals with coastal businesses that depend on marine recreation for their income, many coastal communities receive sizeable indirect economic benefits, as well.

TABLE 1

State Marine Recreation Expenditures and Revenue (Approximates)

State Expenditures		*State Revenue*	
Division of Fish and Wildlife *(marine access and Marine Police)*	$ 600,000	Delaware boat registrations	$ 283,000
Division of Soil and Water Conservation *(dredging)*	$ 250,000	Boat ramp certificates for out-of-state boaters	$ 25,000
Division of Parks and Recreation *(coastal parks)*	$ 650,000	State marine fuel tax	$ 741,000
		Coastal parks revenue	$ 623,000
		State tax revenues from marine recreation spending	$1,500,000
TOTAL:	**$1,500,000**	**TOTAL:**	**$3,172,000**

Overview of Public and Private Sector Marine Recreation Services and Programs in Delaware

As in any complex system, there are a number of individual agencies and programs and private sector interests involved in providing marine recreation facilities and services to the public. The following is a brief discussion of these organizations' principal activities and responsibilities in the area of marine recreation in Delaware.

PUBLIC SECTOR

Department of Community Affairs and Economic Development

Division of Economic Development. The Division of Economic Development is primarily responsible for attracting new business to Delaware and helping to increase the productivity of existing businesses. There are four sections in the Division: the State Travel Service, Industrial Financing, Industrial Development, and Economic and Community Development Planning. The State Travel Service provides information on marine recreation and tourism opportunities in the state through direct mailings, travel-writer tours, workshops, and conferences.

Until recently, the Division of Economic Development had little direct involvement in marine recreation. However, with increasing awareness of the importance of marine recreation to the state's economy and of the problems and needs of marine recreationists, the Division has been working to adapt its industrial development services to meet marine-related business needs.

Department of Natural Resources and Environmental Control

Division of Environmental Control. This Division administers laws and regulations to control air and water pollution and to protect the public interest in preservation of tidal wetlands and state-owned subaqueous lands. With these administrative responsibilities, the Division frequently interacts with both the public and private sectors when permits are required for marine recreation facility development.

Division of Fish and Wildlife. Responsibility for the management and conservation of Delaware's fisheries (fresh and saltwater) and wildlife resources belongs to the Division of Fish and Wildlife. As part of the management of these resources, the Division provides public access for fishing and hunting by means of launch ramps and other facilities. The Division also sponsors the year-round Delaware Sportfishing Tournament for freshwater and saltwater species.

Ten marine, boat-launch ramps and two fishing piers (Port Mahon and Woodland Beach) are presently maintained by the Division. The Division also maintains four fishing piers along the Chesapeake and Delaware Canal that were constructed by the U.S. Army Corps of Engineers.

The Small Boat Safety Office, housed in the Division of Fish and Wildlife (Fisheries Section), operates the boat registration system and manages the Marine Police. The Marine Police provide search and rescue, safety equipment examinations, and public education. They also enforce state laws related to commercial fishing and hunting in Delaware tidal waters.

Division of Parks and Recreation. The Division of Parks and Recreation provides recreation services to state residents, primarily through the operation of the state park system. Their waterfront facilities are also a major attraction to out-of-state visitors. The Division operates one marina, maintains launch ramps at two locations (Holts Landing and Indian River State Marina), and maintains a fishing pier in Cape Henlopen State Park.

State Comprehensive Outdoor Recreation Plan (SCORP). SCORP is an outdoor recreation planning process mandated by the federal Land and Water Conservation Act of 1965, thereby establishing and maintaining Delaware's eligibility to receive monies from the federal Land and Water Conservation Fund.

One function of SCORP is to assess the demand for and supply of both public and private outdoor recreation facilities and services in Delaware. SCORP also helps the Division of Parks and Recreation to acquire, develop, and plan recreation facilities. SCORP is the Governor's official policy for recreation and natural heritage.

Division of Soil and Water Conservation. One of the responsibilities of this Division is the operation of the state dredge. This dredge is used primarily to maintain channels in smaller recreational waterways, but it is also used for beach nourishment.

Department of Transportation

Division of Highways. Although the Division of Highways is involved primarily in roadway development and maintenance, it has, in the past, maintained small launch ramp facilities in a few locations. Currently, the Division has no launch ramps, but plans are being made to develop one new ramp that will be maintained by the Division of Fish and Wildlife. In addition, the Division owns several waterfront access points at the ends of roadways, where future marine recreation facilities could be developed.

University of Delaware

Sea Grant Marine Advisory Service (MAS). Sea Grant MAS is an extension and technology-transfer program funded by the federal government and operated in Delaware through the College of Marine Studies of the University of Delaware. The Marine Advisory Service acts as a link between University researchers and private businesses that depend on the marine environment. For instance, the Marine Advisory Service helps people with marine recreation interests to analyze technical alternatives for solving problems, and it provides public information on a wide range of marine-related topics.

U.S. Department of Defense

United States Army Corps of Engineers. Many of Delaware's recreational waterways are Corps of Engineers projects--meaning that the Corps has been given the responsibility to maintain the channels at their authorized depths. However, only a portion of these waterways are actually maintained because of funding limitations. The Corps has also constructed fishing piers along the Chesapeake and Delaware Canal.

PRIVATE SECTOR

A large portion of marine recreation services are provided by the private sector. These include marina and boatyard operations, charter vessel and head boat businesses, and support industries (such as boat and equipment sales and bait and tackle shops). In addition, a large number of boat launch ramps and docking facilities are provided by privately-operated campgrounds and other waterfront developments. The private sector provides nearly all of the boat slip capacity in the state, a large number of launch ramps, and all of the charter vessel and head boat fishing services in Delaware.

Major Marine Recreation Issues in Delaware

The Task Force has discussed most of the major components of the state's marine recreation industry. A heavy emphasis is placed on identifying problems in the existing structure and suggesting opportunities for improvement. This section describes major issues the Task Force confronted. They include:

- Launch Ramps
- Marine Police, Fisheries Section Division of Fish and Wildlife
- Maintenance Dredging
- State and Federal Permit Process
- Marinas
- Charter Vessel and Head Boat Operations
- Fishing Piers
- Breakwater Structures
- Finances

Launch Ramps

A large percentage of boats in Delaware waters are trailered and use launch ramps -- mainly because over 65 percent of our boaters use their boats primarily for day fishing as opposed to cruising, weekending, or sailing, and marina space for docking larger boats is inadequate. As a result, boating activity in Delaware is highly dependent upon the availability of launch ramp facilities.

Figure 1 shows how the number of boats registered in Delaware has been growing steadily since the early sixties (an average of more than 1,200 boats were added each year between 1962 and 1979). However, during the last five years there has been a slight reduction in the number of public launch ramps. The private sector has not provided a substantial amount of the total launch ramp capacity because of the high cost of waterfront land for parking and the relatively low return on investment in the land. In addition, private operations must compete with free public launch ramps. The result is that on good summer weekends when the fish are biting, there is substantial crowding at the better public launch ramps from Port Mahon to Indian River.

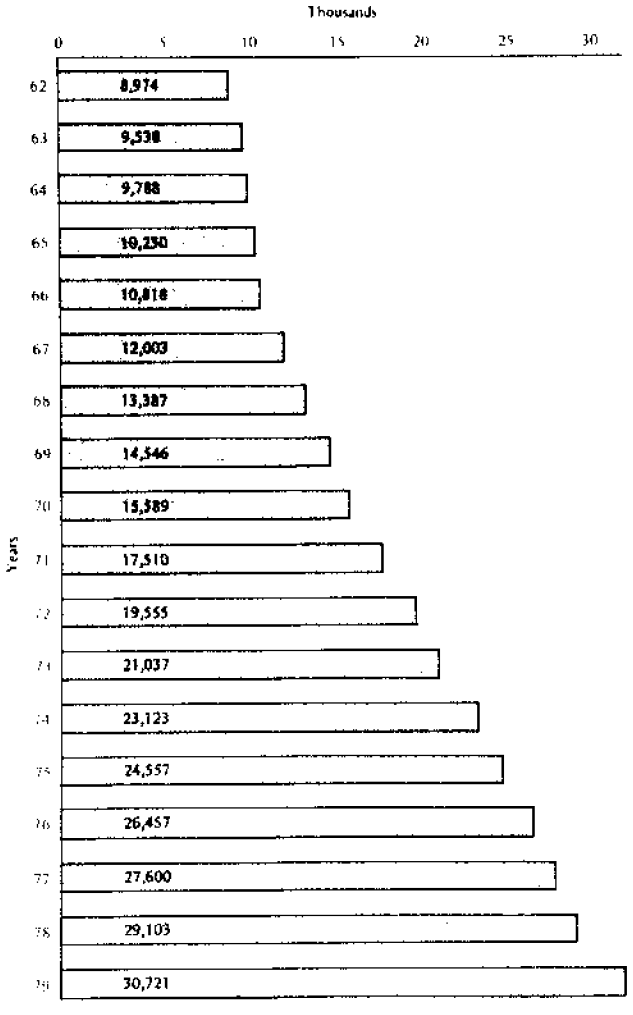


FIGURE 1

NUMBER OF BOATS REGISTERED IN DELAWARE
1962 - 1979

Table 2 provides a comparison of launch ramp usage at Fish and Wildlife access sites for the summers of 1976 and 1978.

TABLE 2

Estimated Boating Use at Fish and Wildlife
Marine Access Areas
1976 and 1978 Fishing Seasons

	1976		*1978*	
Access Area	*Boat-Days*	*Man-Days*	*Boat-Days*	*Man-Days*
Augustine Beach	374	1,046	773	2,146
Woodland Beach	2,506	7,017	2,959	8,285
Port Mahon	16,641	46,593	11,078	31,018
Bowers Beach	18,322	51,301	11,316	31,685
Cedar Creek	36,394	101,904	31,880	89,264
Lewes	23,038	64,507	21,278	59,564
Rosedale Beach	545	1,525	3,732	10,450
Assawoman Bay	1,074	3,008	1,502	4,206
TOTAL	**98,894**	**276,901**	**84,518**	**236,618**

Source: Roy W. Miller, *Marine Recreational Fishing in Delaware* (1976 and 1978), Department of Natural Resources and Environmental Control, Division of Fish and Wildlife.

Another measure of the shortage of launch ramp capacity is provided in the Delaware State Comprehensive Outdoor Recreation Plan (SCORP). Based on the boating demand and the number of available launch ramps identified in the SCORP survey, it was determined that a large deficit of ramps exists. Partly because of insufficient boating facilities, roughly one out of three Delawareans goes boating out of state (primarily to Chesapeake Bay).

Although boat ramps primarily serve residents, Delaware waters and boating facilities also are used heavily by out-of-staters. In 1979, an estimated 2,500 out-of-state boaters purchased boat ramp certificates. In addition, a substantial number of boaters in Delaware waters do not use the state launch ramps. These boaters may use ramps at marinas, campgrounds, or other waterfront developments. Launch ramp use by out-of-staters is considerable, and it produces revenue important to the Delaware economy; but because of crowding, use by out-of-state boaters can reduce recreational opportunities for Delaware residents.

Even though a shortage of ramps has been identified, it is important that any future development is systematic. Poten-

This Lewes launch ramp is one of Delaware's busiest marine access sites.

tial launch ramp sites must be examined to be sure there is adequate demand for usage in the area and all available siting conflicts have been resolved.

While crowding of launch ramps and their access roads is part of the problem, it is by no means the entire problem. Increasingly troublesome, during the last three to five years, has been procurement of adequate revenue to operate and maintain the existing ramps and funds to enable certain ramps to undergo major repair or renovation. As a result, some needed maintenance or renovation is delayed. Often, launch ramps are developed with partial federal funding. These dollars may cover acquisition, planning, and development; however, future operation and maintenance costs must be absorbed by the state agency responsible for managing the facility. Serious thought should be given before construction so that the state can prepare for this financial burden.

Marine Police, Fisheries Section, Division of Fish and Wildlife

Marine police in Delaware assist boaters in the areas of search and rescue, law enforcement, and public education. In addition, the marine police staff enforces hunting and fishing laws and regulations in Delaware tidal waters. There are currently 13 marine police in the state. During 1978, they performed 147 search and rescue missions which involved 450 people. Of these, 34 percent were after hours and 59 percent were on weekends.

It is difficult to say what level of marine police staffing is adequate – how safe is safe enough? There are no absolute standards for the number of marine police needed for search and rescue missions, law enforcement, or education. One way to measure the adequacy of the marine police staff is to compare the number of marine police officers per 2,000 registered boats in Delaware with the ratio in New Jersey, Maryland, and Pennsylvania. The Task Force found that Delaware has 0.89 officers per 2,000 registered boats; whereas New Jersey has 1.32, Maryland has 2.00, and Pennsylvania has 0.95. (This ratio of marine police officers per 2,000 registered boats was determined by multiplying the number of marine police by 2,000 and then dividing by the total number of registered boats in each state. However, each state may differ slightly in the number of individuals included in this ratio; administrators and other support personnel may have been counted in some cases. Delaware's 0.89 ratio was obtained by multiplying its 13 marine police officers by 2,000 and dividing by the 29,103 boats registered in 1978.)

Delaware's problem with a low ratio of marine police officers to boats is further aggravated by a high influx of out-of-state boats during the summer months. Considering this, the actual ratio of marine police officers to boats might be lower. Pennsylvania, the state with the next lowest ratio of marine police officers to registered boats, has far fewer out-of-state boats using its waters than Delaware.

In 1976 and 1978, aerial surveys of Delaware's waters were conducted by the Division of Fish and Wildlife during the prime marine recreation seasons of April through October. These surveys were aimed at estimating the extent of boating and fishing activity in Delaware; however, the results are inconclusive. In part, this is because of methodological weaknesses and the size of the survey area. (The survey data's weaknesses provide little chance for comparison between 1976 and 1978. The major methodological weakness stems from the fact that different airplane pilots were used for the two surveys, which led to inconsistencies in data collection.) What the surveys do show is that the periods of heaviest boating pressure occur, as would be expected, on weekends. More specifically, the number of boats using Delaware's waters is highest on those weekends which precede and include Independence Day and Labor Day.

Analysis of the data revealed that the largest number of boats on Delaware waters on any survey day was 1,550 in 1976 and 1,167 in 1978. These peaks occurred on two weekend days, July 10 and September 3, respectively.

Table 3 shows the relative boat fishing pressure in various regions of Delaware's marine waters, as identified by the 1976 and 1978 aerial surveys. The table also shows how boat fishing patterns have changed between 1976 and 1978, especially in Delaware Bay and Rehoboth Bay. This information is substantiated by fisheries catch statistics.

TABLE 3

Fishing Pressure in Delaware by Area

Area	*% for 1976*	*% for 1978*
Delaware River	0.1	2.1
C & D Canal	0.0	0.6
Delaware Bay	58.5	35.4
Atlantic Ocean*	6.0	11.3
Indian River & Bay	28.0	30.5
Rehoboth Bay	6.6	18.8
Little Assawoman Bay	0.8	1.3
	100.0	**100.0**

*The pilot flew along the beach so aerial counts normally would not include counts much beyond the Delaware three-mile territorial sea.

Source: Roy Miller, *Delaware Marine Fishing Survey, 1978*, Department of Natural Resources and Environmental Control, Division of Fish and Wildlife, 1980.

Even though boating pressures on Delaware waters on any given day are not as intense as one might imagine with the number of registered boats in the state, the 1974 Delaware Boating Act established a ratio of one marine police officer for every 2,000 registered boats. Since the number of boats registered in Delaware approaches 30,000, the marine police are currently understaffed by two officers. If a marine police staff is indeed vital to the safety of thousands of water-based recreationists in Delaware, there must be adequate funding for personnel and equipment to provide such services. Subchapter II, Subsection 2119 of the Delaware Boat Act states:

> "Such support shall be based on the utilization of a boat administrator, a marine police force and the resources necessary to allow for one marine policeman, plus equipment and operating expenses for each 2,000 boats registered as of July 1 of the preceding year. . . ."

Maintenance Dredging

A number of heavily used recreational waterways currently suffer from shoaling conditions. These include the Mispillion River, the Murderkill River, and large portions of the Indian River and Bay. Furthermore, a number of other waterways could support increased recreational use if they were suitably maintained. The maintenance dredging of the majority of these waterways is the U.S. Army Corps of Engineers' responsibility. In addition, the state Division of Soil and Water Conservation is equipped with a dredge to handle small creeks, inlets, and some beach replenishment projects. For a number of complex reasons involving funding, determination of priorities, and environmental constraints, some needed state and federal projects have been delayed for many years.

It should be noted that Delaware waterways will probably never receive adequate dredging. Delaware has few natural deepwater areas and its easily eroded soils and low flow rates of rivers contribute to relatively high shoaling rates. Funds for dredging work are too limited to keep up with these shoaling rates. But beyond these natural problems, there are additional constraints resulting from difficulties in adapting to environmental concerns that have developed in the last ten years. Where it once was acceptable to deposit dredge spoils on adjacent marshes, it now requires considerable effort and time to find acceptable disposal sites. The result is significant delays in needed dredging projects.

There is no question that environmental concerns are valid. What is lacking in Delaware is an expeditious method for accommodating these concerns while still providing the needed maintenance work. A study similar to that conducted by the Maryland Water Resources Administration, entitled *Management Alternatives for Dredging and Disposal Activities in Maryland Waters*, could be very useful in Delaware. That study focused on dredging in Maryland that has been con-

Construction of a groin like this requires permits from the Army Corps of Engineers and the state.

ducted by both the state and the U.S. Army Corps of Engineers. It also examined the adequacy of disposal sites statewide, state and federal cooperation, and long-term projections for dredging and disposal.

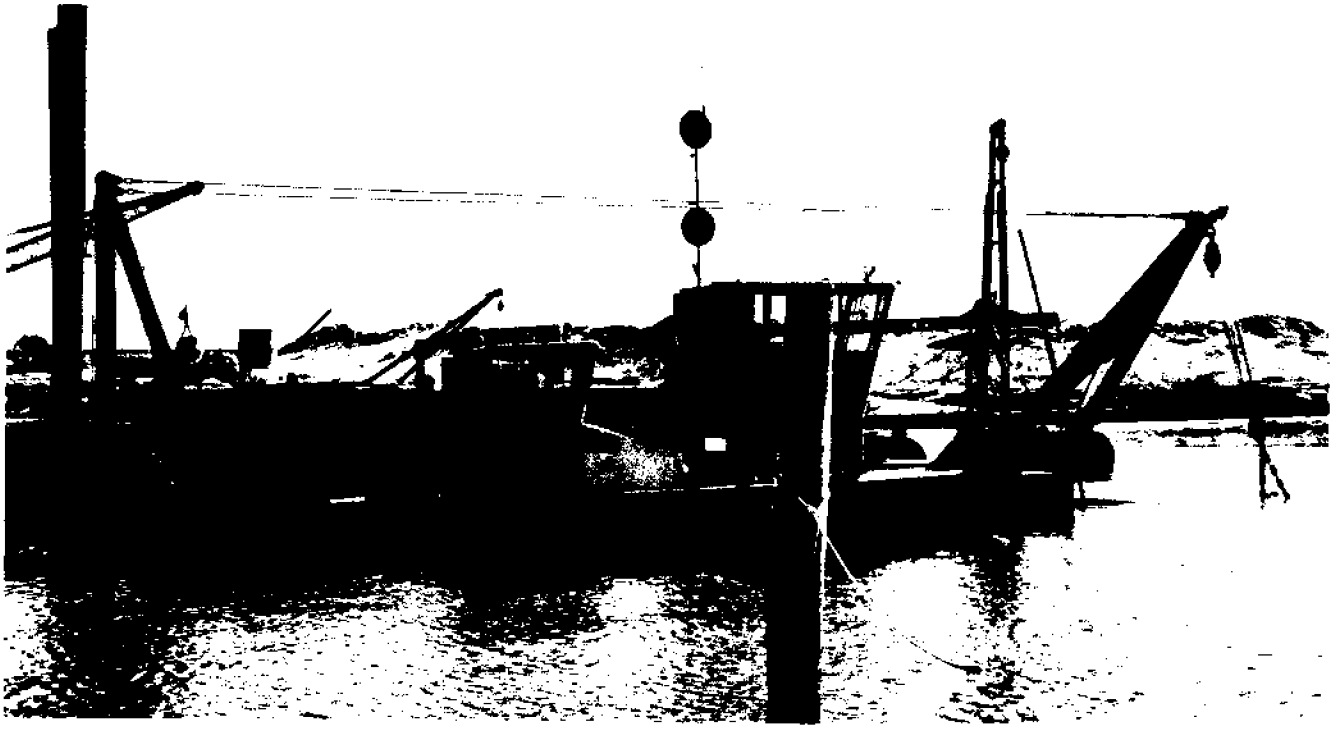
State and Federal Permitting Process

The concern over delays in maintenance dredging from regulatory programs is only part of the picture. Many in the private sector have expressed serious concerns over the long delays (and resulting costs) stemming from a wide range of permits and leases. These include state wetlands permits and subaqueous land leases in addition to other state and local development permits. Additional permits are also required at the federal level.

The state wetlands regulations have been modified recently by a Superior Court decision. Under previous regulations, there was an absolute prohibition on issuing a permit that involved any filling of wetlands. The absolute prohibition on filling acted as a strong disincentive for marine recreation development (or a strong incentive for breaking the rules by "midnight filling"). The commitment to wetlands preservation is supported by all parties and the Task Force recognizes that all reasonable means should be employed to avoid or minimize the loss of wetlands for needed marine recreation facilities.

Delaware regulatory officials have, for the past few years, been encouraging those who desire to conduct activity in wetlands or subaqueous lands to notify them when first beginning to discuss their projects and possible alternatives. State officials are now working closely with prospective applicants to see that their projects comply with state regulations and cause minimal environmental damage. For the most part, projects that experience long delays are poorly planned to begin with and would probably cause adverse environmental impacts.

Maintenance dredging is vital to the recreational use of many of Delaware's waterways.



Presently, the time required to issue a state permit is approximately 45 days and the time required to issue a lease is longer, because the Governor's signature is also needed. Generally, delays occur when either adjacent property owners or the public feel that a particular project is unacceptable and a public hearing is requested. If a hearing is convened, it can delay action on a project for up to four months. Permits for maintenance dredging in the state are handled by issuing letters of authorization. These do not have to be advertised and are generally issued within two to three weeks.

The situation at the federal level is quite different. Before the U.S. Army Corps of Engineers can act on a permit application, the information must be reviewed and approved, principally by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Environmental Protection Agency. Each of the federal agencies reviews the application, inspects the site, if necessary, and forwards its comments to the Corps. In many cases, the inspectors for the federal agencies fail to gain a full understanding of the background and need for a particular project.

When the Corps of Engineers receives comments, they simply forward them to the applicant and let him attempt to resolve the dispute. Delays are evident in this process when inspectors from a variety of federal agencies with different mandates review a project application. Each must assess the impact, knowing their agency's concerns, and then comment to the Corps of Engineers. The Corps of Engineers, in turn, forwards all comments on the project to the applicant who must resolve any objections with the appropriate agency.

As economic and environmental conditions continue to affect potential marine recreation developers, permitting procedures must be continually evaluated. State officials are working earnestly in this direction, and improvements are underway at the federal level.

Marinas

Compared with New Jersey and Maryland, the Delaware marina industry is small. There are approximately 20 commercial marinas in Delaware with a slip capacity for 10 or more boats. Cecil County, Maryland, alone, has over 50 marinas.

This relatively small number of marinas in Delaware represents a loss of potential income to the state. The SCORP survey found that one out of three Delaware boaters spends his boating dollars out of state. These Delawareans are predominantly owners of large, non-trailerable power and sail boats. According to the Cecil County Marina Association, 1,119 of the 4,867 boats moored there, or 23 percent, are owned by Delawareans. The average yearly slip rental is $800. Typically, slip rental represents about one-half of what a boatowner spends. The rest goes for fuel, gear, food, beverages, repairs, and other expenses. Assuming an average $1,600 per year expenditure, Delaware boat owners spend $1.8 million per year in Cecil County, alone. In addition, Delawareans keep their boats in other Maryland counties and in New Jersey. Though slip rentals in Delaware are considerably lower than in Maryland, it is estimated that the economic loss to Delaware by not having a sizeable marina industry could be close to $2 million annually.

It must be recognized that there are natural reasons why the Maryland marina industry is so large and Delaware's is so small. Chesapeake Bay has deeper water and many more natural harbors. In addition, the tide range and tidal current velocities are perhaps 10 to 20 percent less there than in Delaware Bay. It must also be noted that Delaware Bay suffers because it is compared with one of the most attractive water bodies for sailing and cruising in the country. If Delaware Bay were compared with New Jersey estuaries or other estuaries along the East Coast, it would not be perceived unfavorably.

On the positive side, Delaware is closer than much of Chesapeake Bay to northern population centers. In Cecil County marinas, 55 percent of the slip users are Pennsylvanian, many of whom have to travel more than an hour to reach their boats. In this era of expensive gasoline, many boaters may be willing to trade some amenities to reduce travel costs and transportation time. Additionally, fishing in Delaware Bay and offshore has been excellent over the past few years, especially for sea trout and bluefish. As a result of these conditions and the overall growth in recreational boating, Delaware marinas are full and have long waiting lists. Based on a winter 1978-79 survey of a number of Delaware marinas by the University of Delaware Sea Grant Marine Advisory Service, it is estimated that there is a demand for an additional 300 to 500 slips statewide.

If business opportunities are there, why isn't the Delaware marina industry taking advantage of them? A major reason may be the poor return on investment. The cost of waterfront land, workmen's compensation insurance, and interest on capital has risen at a rate that is equal to, if not greater than, the inflation rate. In many cases, land was purchased for existing marinas before prices increased dramatically. However, if a new marina were started today, the owners would have to obtain a large amount of capital.

The average slip cost for a 25-foot boat as determined by the 1978-79 MAS survey is $250 per season. (This cost was determined by averaging prices throughout the state. Prices were generally higher in the southern part of Delaware.) To achieve a reasonable return on a new marina investment, it has been estimated that slip prices would have to double. In order to cover steeply rising maintenance costs, owners of existing marinas would also have to raise prices significantly. Most marina owners are unwilling to charge that much even though

they realize that their current return does not generate the replacement value of their investment. Because prices are rising, it appears that only multi-use marinas (such as those with boat sales, maintenance and service, residential development, and/or restaurants) will become profitable ventures in the future.

Another reason the Delaware marina industry has not kept pace with the demand is the shortage of suitable natural sites. Most of the best remaining marina sites in Delaware require considerable investment in breakwaters, dredging, or other site preparation.

A third constraint to marina development is the regulatory system and the private sector's perception of that system. With the many local, state, and federal agencies involved in issuing permits and providing comments on permit requests, as well as the general public's right to request a public hearing on a project, it has not been uncommon for projects to be delayed for several years. As a result of these delays, many in the private sector are hesitant about even applying for permits. However, there are some people who have taken the time to find out which agencies are involved and how to deal with them. In general, these people have encountered fewer problems obtaining needed permits. The state is also working closely with prospective marina developers to help them prepare permit applications that will comply with state and federal environmental regulations.

The marina industry has the potential to make a solid contribution to the state's economy by bringing in out-of-state dollars. Marinas also attract other business enterprises. It is not uncommon for restaurants and other shops to open in the vicinity of a marina simply because boaters are not the only people attracted to water and boats. Marinas also tend to be reasonably good year-round employers (Cecil County marinas employ over 300 people year-round). With new regulations on wastewater discharge, and proper design to minimize wetland loss, marinas can have little negative environmental impact.

A modest expansion of the state's marina capacity would provide increased recreational opportunity and make good business sense. The problem is how to encourage new marina development. It is not likely that the private sector can do much on its own.

The only practical means of encouraging marina development appears to be through some form of public encouragement similar to that currently employed to attract other industries and businesses to Delaware. Under current regulations,

Demand for slip space in Delaware is sufficient to warrant marina growth.

it is possible to obtain federal Economic Development Administration (EDA) grants and business loans as well as federal Land and Water Conservation Fund monies for suitable projects that will enhance both economic and outdoor recreational opportunity. Another encouraging move would be to lease public lands for private marina investment. If a long-term lease of 25 years or more were offered, it might be of great interest to potential developers. In addition, the growth in state tax revenues could easily justify state investment in site preparation, through development bonds, loan guarantees, or land leasing.

Charter Vessel and Head Boat Operations

The charter vessel and head boat industry in Delaware is a marine recreational service provided entirely by private interests. In the past few years, the industry has become big business. It is estimated that between 175,000 and 177,000 customers use the approximately 112 charter vessels and 20 head boats annually.

These boats operate principally out of four major ports in Delaware: Mispillion, Bowers Beach, Lewes, and Indian River Inlet. The economic importance of this industry to the total marine recreation market is considerable. One operator estimated that for every $10 a customer spends on his boat, another $10 (and probably more) is spent in the community. The average price for a half-day fishing trip on a head boat is $8 to $10; a full-day trip might range between $12 and $16. On a charter boat, the approximate price is $30 to $40 a person, usually with a maximum of six individuals.

It is difficult to estimate accurately the economic importance of the industry to the state. However, using conservative estimates, if those 175,000 annual customers pay approximately $20 per trip (estimated average spent considering charter vessel and head boat costs combined), the economic value of the industry is about $3,500,000 annually. If customers do spend an equal amount in the local areas, this represents considerable revenue for those communities.

The charter vessel and head boat industry in Delaware has fluctuated a great deal over the years, often depending upon the presence of fish in Delaware Bay. Recently, with abundant numbers of fish present, the industry has flourished.

There are a number of reasons why individuals choose to fish from charter vessels or head boats. In some cases, customers own boats, yet like to have the charter vessel or head boat captain locate the fish and assume all the other boat operator responsibilities. Sometimes, the customers are not that serious about catching fish (this is especially true of the half-day head boat trips). The majority of customers on Delaware's charter vessels and head boats are people from the middle to upper class. They come primarily from upstate, Pennsylvania, Washington, DC, and Baltimore, Maryland. Operators working in Sussex County receive a good deal more tourist business, compared with those in the Bowers Beach area who serve many more local residents.

In addition to the economic impact of charter vessels and head boats, state and local officials should recognize that this private sector industry plays a vital role in providing marine recreation opportunities to a large segment of the general public. State and local agencies could assist this industry by directing fishermen to the various fishing ports in the state. All of Delaware's ports, except for Indian River, are located off Route 13, the major north-south highway in the state. Public assistance in providing directional highway signs could be beneficial. There is also the possibility that the State Travel Service could promote tour packages to include charter vessel and head boat fishing trips. Finally, the State Division of Parks and Recreation, along with private interests, should investigate potential sites for camping facilities in Kent County. A shortage of facilities in that county has been identified by charter vessel and head boat operators.

Presently, there is strong public and private sector cooperation between the publicly operated Indian River State Marina and the private sector charter vessels and head boats that operate out of there. State and local assistance to this industry should be available to insure that the services they provide continue.

Fishing Piers

Fishing piers are valuable in enabling non-boatowners to fish. Piers often extend into deep water and increase the chances for successful catches. Since all the piers in Delaware are publicly owned and maintained, costs for usage are nonexistent or quite low; thus, a broad segment of the population has the opportunity to use them. Such is the case with the pier at Cape Henlopen State Park, where the user fee is the cost of admittance to the park.

There are three state-constructed piers in Delaware. Two are owned and maintained by the Division of Fish and Wildlife (Woodland Beach and Port Mahon), and the third is operated by the Division of Parks and Recreation (Cape Henlopen Park). There are also four piers constructed by the U.S. Army Corps of Engineers along the Chesapeake and Delaware Canal. These are maintained by the Division of Fish and Wildlife.

Construction and operation of fishing piers by the private sector has never been feasible in Delaware. This is due mainly to the high cost of construction. In addition to initial high costs, severe winter icing conditions can also damage piers. The classic example is the damage that occurred to the Port Mahon pier during the winter of 1978-79 because of the shearing effect of ice as it moved down the bay. In order to avoid ice damage,

Head boats, run entirely by the private sector, are important to marine recreationists and local economies.

piers need to be engineered to withstand tremendous stress loads. This drives the costs up substantially.

State officials have stated that though fishing piers receive a considerable amount of use, the present number appears adequate at this time. However, the extensive renovation of the Cape Henlopen pier should improve fishing access for pier fishermen throughout the state. We are also fortunate in Delaware to have good jetty fishing (mainly from the Indian River Inlet jetties) and excellent surf fishing. There is, however, a safety factor to consider when jetty fishing. Perhaps state or federal officials should examine the dangerous conditions at existing jetties and act to ensure safety for those fishing from these structures.

Breakwater Structures

Because of severe storms that have occurred along Delaware's shoreline, many recreational sites need protection. One type of protection is the breakwater. Breakwaters, both permanent and temporary, have proven to be successful against wave and storm action for recreational facilities across the nation. The best, and also the most expensive, are rubble mound breakwaters, similar to those currently found in Lewes near Cape Henlopen Point.

Currently, the U.S. Army Corps of Engineers is testing floating tire breakwaters along Delaware Bay and Pickering Beach. Once their testing is complete and results are made public, these structures can be examined for actual use in protecting shore areas along Delaware Bay.

There is a definite need to conduct additional studies of wave action on areas where marine recreational facilities are proposed. Breakwaters can be costly structures, but they can also ensure wave protection for such facilities. The Task Force realizes that breakwater structures cannot be constructed for every boat ramp, fishing pier or bulkheaded area along the Delaware shoreline. However, where the potential for additional facilities is great, in terms of use and recreational expenditures, breakwater structures should be seriously considered.

Financial Issues

A major problem identified by the Task Force is inadequate funding to operate and maintain many of the public marine recreation facilities. Many public facilities are constructed in part with federal monies. However, it is expected that state money, which is not always available, will be used to maintain or renovate the facilities.

This is a difficult problem to address, because adequate funding for many public agencies is limited. An attempt has been made to recommend alternative funding sources to supplement the income of public recreation agencies. The rationale behind recommending these particular alternative funds is that they are generated in some way through marine recreational activities.

It has been well documented that a variety of public sector marine recreation ventures generate considerable revenue for the state treasury. It is also understood by the Task Force that a large segment of these dollars is put into the state General Fund and allocated for a variety of uses other than marine recreation. Numerous solutions for increasing public sector funding have been discussed by the Task Force. User fees were suggested at boat launch ramps; however, it was agreed that this is unacceptable since there is already a limited system of fees (residents pay a fee to register their boats and use the ramps and nonresidents purchase a boat ramp certificate). There was also divided opinion on whether user fees collected would exceed the cost of the collection. The adoption of a state saltwater fishing license was also discussed, but once again, with the diversity of the Task Force, an agreement on this form of additional funding could not be reached. In the future these alternatives may be necessary to ensure funding for operation and maintenance at public marine recreation facilities.

In addition to operation and maintenance, the acquisition and development of many facilities would not be possible without federal sources of funding, such as Land and Water Conservation Fund dollars and Federal Aid to Fisheries monies. The Task Force recognizes the value of these federal dollars and strongly encourages state, county, and local agencies to continue requesting such monies for marine recreation acquisition and development.

There are a number of additional funding possibilities that should be considered. The first is to request budget increases from the state General Fund to assist those state agencies that invest in marine recreation facilities and services. Needed budget increases have already been identified for the Division of Fish and Wildlife and others.

Special funds dedicated to public sector providers of marine recreation facilities and services should also be examined. One possible source of special funding is through the dedication of state marine fuel taxes. These presently flow to the state General Fund but could, instead, be directed to the Department of Natural Resources and Environmental Control (DNREC). In excess of $500,000 is generated by Delaware boaters through the 9 cents per gallon tax on gasoline. It has been reported that approximately $27,000 is reclaimed by boaters who fill out the required paperwork. Since this tax is generated by marine recreationists, it seems reasonable that all or part of it should be returned for improving marine recreational opportunities. According to one Delaware official, 33 states that collect marine fuel taxes use a portion of the revenue to support recreational boating. For this funding alternative to occur in Delaware, state legislative action would be required.

Other dedicated funding could come from state subaqueous land lease revenues. A portion of these monies come from individuals who dredge or fill public subaqueous lands and people who build launch ramps or docking facilities on public subaqueous lands. Since a portion of these dollars are generated from recreational interests, they too might be dedicated to DNREC instead of the state General Fund. Figures of $40,000 or more have been mentioned as being generated through this leasing fee.

Revenues for marine recreation acquisition and development could also be generated through the passage of bond issues. If state-supported marine recreation projects could be shown to be economically beneficial and environmentally sound, then the General Assembly and the public could be convinced of these projects' value to the state and adoption of bond issues could become a reality. Large-scale projects such as breakwaters, dredging projects, or marina construction or renovation might be considered worthwhile bond issue projects.

As previously mentioned, one financial alternative that could assist the private sector in marine recreation development would be the leasing of public lands to the private sector. With a long-term lease, this alternative has positive financial benefits for both the state and private investors. A move of this nature would help to improve cooperation and coordination between individuals with public and private marine recreation interests.

It should be stressed that scarce funding for marine recreation activities is not the only financial problem in government today. Nearly every unit of government considers itself underfunded. What makes most marine recreation ventures unique is their potential to more than pay for themselves with direct fees and taxes. In addition, a great deal of indirect revenue is generated through taxes. Furthermore, those services and facilities associated with marine recreation have the potential to generate additional economic benefits, providing they are suitably nurtured.

Recommendations and Resolutions

The following recommendations and resolutions represent the Task Force's agreement on major issues in the area of marine recreation. As a Task Force, we feel these recommendations express both public sector and private sector views on enhancing marine recreational opportunities. These recommendations are presented in hopes that positive and constructive strides can be made to alleviate those unnecessary burdens that presently exist.

Launch Ramps

- Recommended is a limited-expansion policy for public launch ramps until further studies are conducted to determine accurately the amount of use certain ramps receive and where the demand for public ramps is greatest.
- Heavily utilized public launch ramps should receive adequate funding to ensure that maintenance and renovation can take place as needed.
- Future public launch ramp development should systematically be tied to an operation and maintenance schedule to avoid lack of funds for such purposes.
- The private sector is encouraged to develop launch ramps for public use in conjunction with marinas or other waterfront facilities.

Marine Police, Fisheries Section, Division of Fish and Wildlife

- The ratio of one marine police officer for every 2,000 registered boats should be attained and then maintained in Delaware, and equipment necessary to support this personnel should also be added, as specified in the Delaware Boat Act of 1974 (Subchapter II, Subsection 2119).
  Appropriations from the General Assembly for fiscal year 1981 include funding for two additional marine police officers.
- A regular schedule for replacing obsolete and worn out equipment should be reflected in Delaware's Capital Improvement Program (CIP) budget.

Maintenance Dredging

- It is recommended that Delaware's Department of Natural Resources and Environmental Control conduct a comprehensive study of state waterway maintenance, seeking funding from and closely coordinating its work with Delaware's Coastal Management Program. The outcome of the study should be a well-organized, long-range plan for state waterway maintenance that addresses such issues as state dredging needs (short-term and long-term), the allocation of dollars each year for dredging, state and federal jurisdiction, the adequacy of dredge spoil sites, the need for future disposal sites, and possible permit streamlining efforts. The study team should consult with state agency representatives as well as individuals in the private sector who have an active interest in state dredging activities.
- Wherever possible, the state Division of Soil and Water Conservation should coordinate its dredging efforts with the Army Corps of Engineers' dredging projects.

- The private sector is encouraged to obtain dredging from private firms, thereby allowing the state dredge to adequately maintain public waterways. To assist marina operators, the Division of Soil and Water Conservation could provide a list of private dredging firms located in the area.

State and Federal Permitting Process

- The State Division of Environmental Control should encourage the Army Corps of Engineers to issue more general permits for routine maintenance and improvement activities in certain waterways in Delaware. This procedure is outlined in the Federal Register, Volume 42: Number 138, *Regulatory Programs of the Corps of Engineers: Rules and Regulations*, Section 322.2 (f).
- For the benefit of the private sector, the University of Delaware Sea Grant Marine Advisory Service should coordinate and cosponsor, with the appropriate local, state, and federal agencies, a workshop to review and discuss permitting requirements at all levels of government.
- From the workshop proceedings, the Sea Grant Marine Advisory Service should prepare a document outlining local, state, and federal permit requirements for marine recreation development.

Marinas

- The Division of Economic Development should continue to provide technical assistance to marina operators, and explore options for expanding its services for potential marina developers, especially to include financing programs (such as low interest loans and tax incentives).
- The Department of Natural Resources and Environmental Control should also explore the possibility of leasing public waterfront land on a long-term basis to potential marina developers.
- It is suggested that future road and bridge construction by the Department of Transportation consider the possibility of marina growth throughout Delaware and design bridges to accommodate recreational and commercial vessel traffic.

Charter Vessel and Head Boat Industry

- The Task Force endorses the recommendation that signs be erected on state highways to identify where charter vessel and head boat fleets are located. This recommendation should be carried out in conjunction with a "State Highway Sign Program," under the direction of a committee appointed by the Division of Highways, whereby signs of interest to tourists and recreationists could be erected.
- The State Parks Director and private interests should consider the need for and feasibility of developing additional campground facilities near existing fleets.
- The State Travel Service is encouraged to promote the use of charter vessel and head boat services, especially when developing tour packages.

Fishing Pier Operations

- Since the present number of fishing piers seems adequate, development of additional piers by the private or public sectors is not recommended. While these facilities are desirable and would be used, the cost for them is extremely high and ice damage during the winter can be severe.

Breakwater Structures

- Feasibility studies for breakwater structures should be conducted, especially where breakwaters can be used to shelter marine recreation development sites and recreation facilities.
- The Department of Natural Resources and Environmental Control should monitor present Army Corps of Engineers breakwater testing in Delaware Bay.

Financial Issues

The Task Force recognizes the need for additional sources of funding to help public agencies provide marine recreation facilities and services:

- We support and encourage the continued use of federal funds (such as Land and Water Conservation and Federal Aid to Fisheries) for marine recreation site acquisition and development.
- Increased budget allocations from the General Fund to state agencies providing marine recreation opportunity is supported by the Task Force.
- It is recommended that special fund revenues, generated by marine recreation, be dedicated to and allocated through the Department of Natural Resources and Environmental Control. The two major sources of special funds are unclaimed state marine fuel taxes and subaqueous land lease fees.

- We encourage and support bond issues in the General Assembly that assist in the development of marine recreation facilities.

Conflict over Resident vs. Out-of-State Users of Public Facilities

- Out-of-state users are adequately charged for the use of public marine recreation facilities, but this does not exclude the possibility of future user charges. Fewer out-of-state visitors during times of crisis, such as the 1979 summer fuel shortage, could make maintenance and operation at some public marine recreational facilities difficult. Therefore, the adoption of additional user charges may be necessary.

Research and Information Needs

- Research is needed statewide in many areas of the marine recreation market, for instance socio-economic surveys and studies of site-specific facility feasibility and out-of-state visitor demand. Both the public and private sectors can benefit from research results and current technical information in the area of marine recreation.
- The Task Force recognizes that the resources available at Delaware's colleges and universities, including technical and community colleges, are valuable. Individuals at these institutions are urged to conduct studies that can provide information on the above-mentioned issues. Support for specific studies could be available from state or county agencies as well as universities.

Energy Issues

Energy issues will continue to have a major impact on all aspects of life in the years to come. Delaware's recreation and tourism sectors will be affected in both positive and negative ways:

- The state's Department of Transportation is encouraged to act as the lead agency in examining the potential for mass transportation systems in Delaware to assist the recreation and tourism industries.
- Energy saving measures are encouraged for all sectors of the marine recreation community.

Public Sector vs. Private Sector Marine Recreation Development

- To alleviate potential sectorial conflicts, the Task Force recommends that the following guideline should be adhered to by the public sector: Demand should warrant the development of public facilities. That is, a current deficit should be identified.
- A surplus of recreation facilities should not be created through development.
- The public sector should not undercut private sector prices for comparable services. Public sector marine recreation development should provide a positive economic benefit to local communities.

Sites with Potential for Marine Recreation Development

One of the ways in which the Task Force sought to make specific recommendations was to identify sites where new facilities could be located. This was difficult since a number of factors had to be considered (such as ownership of land, road access, presence of wetlands, and water depth). Due to limited supplies of manpower and financial resources, an in-depth analysis of all these elements was impossible. However, in its early fact-finding stages the Task Force did conduct a preliminary inventory of potential sites.

The sites identified by the Task Force are not automatically endorsed for marine recreational development. Each site must still be analyzed in-depth to determine what, if any, physical, environmental, or socio-economic impacts may occur if development takes place. In addition, the local infrastructure around an identified site must be assessed to determine its adequacy.

The following sites have been discussed and are worthy of serious consideration. (See Appendix for additional sites inventoried.)

- **Port Penn.** A private marina was proposed for this area in the early 1970's. This idea had gone all the way through the permit process and was ready to undergo construction when financial problems stopped the project. Because of Port Penn's proximity to population centers and good natural conditions, a 200-to 300-slip marina would probably be filled very quickly and would provide needed economic stimulation to the area.
- **Port Mahon.** In this case, the state is preparing to spend about $2 million for erosion control to protect existing state investments—a road, a launch ramp, and a fishing pier. Although a rubble mound breakwater was investigated and is now considered too costly, extension of the jetties at the site is a possibility that could cut down the extreme erosion. This could lead

to the development of docks along the river to accommodate charter vessels and head boat fleets near the Dover area.

- **In Lewes, near the ferry terminal and the proposed fishing or offshore oil support port.** This location would be highly desirable for boaters because it provides easy access to both the bay and ocean. Development here would be consistent with existing marine recreation facilities in the area and it would help offset some of the negative aesthetic effects from more industrially-oriented development. Both the state and U.S. Army Corps of Engineers are actively working on plans to dredge and improve the area. Incorporating some marina development in these plans seems both practical and highly desirable. Additionally, the state Division of Parks and Recreation has considered the space within the inner breakwater as a potential site for a large mooring area.
- **The old cut in the Chesapeake and Delaware Canal at Lums Pond State Park.** Recreational use of the canal is high and the cut offers a developable area that is physically buffered from the industrial canal traffic. The state leases the property from the U.S. Army Corps of Engineers, and the Division of Parks and Recreation has considered developing this area as a transient marina and leasing it to the private sector.

Future Task Force Roles

- At the request of Governor du Pont, the Task Force has agreed to remain intact in an advisory capacity upon completion of the final report.
- The committee should be responsible for monitoring the implementation of the recommendations contained within this report. That means, the committee would have to be available for clarifying as well as reviewing critiquing, and providing advice to the Governor and the General Assembly on all matters relating to public and private aspects of the marine recreation industry.
- Coordination of future efforts should be provided by the University of Delaware Sea Grant Marine Advisory Service.

APPENDIX

Sites of Potential Value for Marine Recreation

Fox Point Park. Fox Point is a narrow strip of land composed largely of dredged material that lies between the Penn Central railroad tracks and the Delaware River north of Wilmington. New Castle County has plans to develop the area as a shoreline park, but financial limitations have delayed action. A peninsula extends into the river at Fox Point that would provide some protection for a boat-launch ramp, but the value of a launch ramp is difficult to predict. Since it would be located near population centers, it is reasonable to believe that use would be significant. If a launch ramp could be installed with an accompanying parking lot, the cost would be relatively low and the potential benefits – opening a largely unused section of the river to boating activity would be great.

North bank of the Christiana River between the mouth of the Brandywine River and existing boatyard. The city of Wilmington has purchased 6.8 acres of waterfront land (approximately 1,300 front feet) between 7th Street and the Christiana River. It has been proposed that the land be used for expanded marina facilities or boat launching. In addition, if the shore were to be bulkheaded, the site could be used for public fishing and crabbing. The city has no development plans for the area at this time The site is on fastland, but located in the 100-year flood plain.

This site appears well-suited to public recreation, as it is in the city and provides access to the Delaware River. However, city officials are not anxious to develop another park since the city budget is already strained. Officials would prefer to generate some income from the property by leasing portions to concessionaires while still providing public access to the water. An ideal solution might be to lease the land for expansion of existing private marina facilities.

Pigeon Point. The area to the north of the Delaware Memorial Bridge is now used as a solid waste landfill. When the landfill is exhausted, it is anticipated that the area will be turned into a waterfront park. This is because the soil is unsuited for any heavy development and Pigeon Point also provides an excellent view of the river. However, no firm plans have been made and it is not certain how long the land will continue to be used as a solid waste disposal site.

There is also an abandoned pier to the north of the landfill which is owned by Delmarva Power and Light. Delmarva Power and Light has offered the structure to New Castle County, providing it is used for fishing. But road access to the pier appears to be a limiting factor and no action has yet been taken. Also, the pier has been damaged by fire.

A riverfront park at Pigeon Point would probably be well-received since the site is close to a metropolitan population, provides an excellent view, and can be used for little else. In addition, there is deep water close to shore, raising the possibility of constructing a boat-launch ramp or recreational boat moorings that are similar to those at the New Castle Sailing Club.

The major limitations appear to be the existing landfill (which will doubtlessly continue to be used as long as it is physically possible) and the cost of park development. New Castle County may be able to ease the cost burden by insisting

that the landfill be graded, fertilized (possibly with sludge), and seeded when landfill operations are concluded. Long-range plans are now being made for park development.

Delaware City branch canal. Land along the west bank of the Delaware City branch canal is owned by the Army Corps of Engineers. Included in this tract is an approximately 1,000-foot strip that extends along the canal from the Route 9 bridge at the north to the Chesapeake and Delaware Canal. A section in the middle of the branch canal is somewhat wider. The land was filled during canal construction and water depths are adequate for recreational vessels. However, the six-foot vertical clearance of the Route 9 bridge would limit use to smaller power boats.

This area would be suitable for expansion of facilities for smaller boats at the existing Delaware City Marina and possibly for winter storage on the canal bank. The Army Corps of Engineers is considering deeding this and other lands along the Chesapeake and Delaware Canal to public agencies for recreational purposes. If this land could be deeded to Delaware City and leased to the existing marina, a certain amount of facility improvement could be obtained at little or no public cost.

Governor Bacon property along branch canal adjacent to Route 9 Bridge. Approximately four acres of open space exist between the branch canal, the hospital facilities, and Route 9. The area may have potential for placement of a boat-launch ramp along the branch canal and parking area. This site is owned by the state Department of Health and Social Services.

This location appears to be suitable for launch ramp development, has adequate parking space, and is adjacent to existing marine service facilities (gas, repair, etc.). However, a fence would have to be erected between the hospital and launch-ramp facilities.

Augustine Beach. This area, south of Port Penn, has a launch ramp and parking area, though both are in poor condition. In addition, erosion threatens Route 9. The Division of Highways has been using building rubble to stabilize the erosion, but it is felt that this solution is unsightly.

There is now a proposal to extend the launch ramp to deeper water, build a fishing pier, and bulkhead the shoreline. Design work has been completed, but construction has not been funded. Because the area is situated relatively close to population centers and to good fishing areas, it would probably be well-used. However, the high price of improving the site, approximately $2 million, is a problem.

Stave Landing. Stave Landing is a small clearing on the north side of Blackbird Creek in the Appoquinimink Wildlife Area. There are already a few small wooden docks and a mud ramp that can launch very small boats generally used for hunting, but expansion of launch ramp facilities has been suggested.

The Task Force feels that the area is not suitable for expansion because the surrounding area is composed entirely of wetlands, making access too difficult.

Mouth of Smyrna River. The mouth of the Smyrna River has a jetty, is relatively well-stabilized, and has good water depth. Expansion of the area to include ramp or dock facilities has been proposed.

The mouth of the Smyrna River provides reasonably good access to Delaware Bay; however, potential for shore development appears to be extremely limited.

Flemmings Landing. Located on Route 9 at the bridge-crossing on the Smyrna River, the land to either side of the bridge is privately owned, but public use is permitted. Flemmings Landing presently contains a small-boat access area and docking space for four or five vessels, but the land is relatively undeveloped at the present time.

Increased small-boat access or a wharf/docking area has been suggested for this site. Small-boat access would be feasible if parking facilities could be provided. However, any development would require a great deal of wetland disturbance.

Collins Beach. The site is located on the south bank of Cedar Swamp Creek, a short distance from Delaware Bay. Several small wooden docks with commercial boats and one dilapidated concrete launch ramp are already present.

Collins Beach is close to Delaware Bay and is used by commercial boats. Although the land appears relatively high with reasonable erosion protection, the marsh grass stands that surround the site would probably prohibit use as an expanded launch ramp facility.

Woodland Beach. The town of Woodland Beach contains numerous public recreation facilities: a boat ramp on Delaware Bay, two inland ramps with access to the bay, and a bayside fishing pier. The boat ramp directly on the bay is scheduled to be removed because of deterioration. One proposed use of the area is a boat rental operation on Delaware Bay.

Existing service facilities, such as bait and tackle shops, make the area a prime candidate for facility development and improvement. However, a major problem is road access. Route 6 is built over a marsh and has subsided to the point where it is flooded during spring tides.

Smyrna Landing. A small residential area, Smyrna Landing is divided among individual lot owners. Because the site

provides easy access down the river to Delaware Bay, it could be used for a small-boat access point and a small wharf/ docking area. However, Smyrna Landing is not suited to large-scale development. Individual ownership complicates the issue of of major development.

Bombay Hook National Wildlife Refuge. Currently under the jurisdiction of the federal government (U.S. Fish & Wildlife Service), Bombay Hook contains a launch ramp for small boats, intended primarily for hunters. Expansion of the boat launching facilities has been proposed.

Although the area might have potential for expanded ramp facilities, it is doubtful that the U.S. Fish & Wildlife Service would consider developing facilities for Delaware Bay access. This agency's primary consideration is wildlife preservation in the refuge itself.

Leipsic. The town of Leipsic contains a small-boat access point and a docking area along the river edge. Expansion of these facilities is proposed.

Leipsic could accept a small-boat launch ramp and additional small-boat docking areas for local use. It is questionable whether the site is suitable for large-scale expansion because of limited land area and its distance of approximately four miles from town to Delaware Bay.

Leipsic River at Route 9 Bridge. There presently exist eight to ten small-boat docks near the point at which Route 9 crosses the Leipsic River. A small-boat access point and expanded wharf/docking areas are proposed for the site.

Although this area has good road access and adequate water depth, it is not ideal for expansion because of limited fastland in the region and excessive distance to Delaware Bay.

Little Creek. The town of Little Creek has existing small-boat docking areas along the river. These could be expanded to the north and south along the river and to the east and west of Route 9. Proposed are expansion of docks and construction of a boat ramp.

The distance to Delaware Bay is fairly short (one to two miles) and existing facilities could facilitate further development. West side development might be restricted because of the low Route 9 Bridge, but existing facilities could be upgraded and new docking areas for small boats could be developed on the east side of Route 9. It is questionable whether adequate fastland exists for a boat ramp and parking area.

Sand pit on St. Jones River near Dover. The area between Route 113 and the St. Jones River includes a large, dredged sand pit. When the present pit is exhausted, George and Lynch, Inc., owners of the site, plan to dredge an approximately 200-foot channel to the St. Jones River and begin developing a marina and a launch ramp. The company also plans to expand its barging operations to a point upstream of the proposed marina.

The proposed marina and launch ramp area seems to have good immediate potential for winter storage of recreational vessels and fair potential for summer use to relieve crowding in areas closer to Delaware Bay. The four-mile run to Delaware Bay could inhibit some recreational use. However, deep water, proximity to population centers, ample room for expansion, and the ability for George and Lynch, Inc. to use its own construction machinery suggest unusually good prospects.

Lebanon. The St. Jones River flows through the town of Lebanon. Areas along the river are presently undeveloped, but a small-boat access point along the river is proposed.

The banks of the St. Jones River where it flows through Lebanon do not appear favorable for development. There are no existing facilities and expansion room is very limited. Boaters would have to travel approximately six miles to Delaware Bay.

South bank of St. Jones River at Bowers Beach. This area has been used commercially in the past. An abandoned oyster house still exists. A launch ramp and a small-boat docking area have been suggested for this site. If water depth were controllable, facility development would be favored. The site is close to existing developments, is highly accessible, and is close to Delaware Bay; but problems of water depth and erosion possibilities should be investigated further.

Bowers Beach. The town of Bowers Beach is heavily developed. Numerous charter and head boats are located in the area as well as support facilities. There are presently two state-owned launch ramps and one private ramp with nearby parking capacity for 200 cars and/or trailers. Expansion of the public launch ramp capacity is proposed.

Demand in this area is high. However, there is a problem with shoaling at the mouth of the Murderkill River. Bowers Beach would be suitable for expansion since support services already exist. However, a major problem is the quality of the undeveloped land because much of it is low-lying marsh. Also, the existing marine recreation facilities need some maintenance work.

Bennett Pier/Clark Point. This area faces Delaware Bay; however, there are no existing facilities or development of any kind. Proposed development includes a fishing pier with support services (such as a bait and tackle shop and a restaurant).

The potential for development in this area seems low because of its relatively undisturbed nature. Also, costs for necessary support services would be high and wetland disturbance might be great.

Frederica. The Murderkill River flows through the town of Frederica about five miles from Delaware Bay. There are two small bridge crossings on Route 12 over the river and one small bridge crossing on Route 12 over Spring Creek. A few small boats are docked at the Spring Creek bridge. Development of two small-boat access ramps and wharf/docking areas within the town limits has been suggested.

Considerable wetland disturbance will occur with facility construction. In view of the distance to Delaware Bay from Frederica and the lack of existing facilities, it is unlikely that the area would receive heavy use. However, given crowded conditions at other locations, moderate use might take place.

Big Stone Beach. A fair number of people own property along the beach. Proposed development of the area includes a fishing pier with support services (such as a bait and tackle shop and a restaurant). However, Big Stone Beach appears to have limited potential for fishing pier development because of costs, undetermined amount of use, and difficulty in providing adequate parking facilities.

Mispillion Lighthouse/Cedar Creek. Presently, the Mispillion Lighthouse Marina and a few charter and head boat operators are located in the area. There is also a large public launch ramp facility in Cedar Creek. Expansion of existing small-boat access points has been proposed.

This site presently receives heavy use and has nearby support facilities. In addition, the lighthouse is a unique structure which, with some work, could be an aesthetically-pleasing landmark. There are some water-depth problems in the inlet that require maintenance work. The major limitation to expansion of land-based facilities at this site is a shortage of available waterfront property.

Milford. It is approximately six miles to Delaware Bay from where the Mispillion River flows through Milford. Expansion of existing marina and boatyard facilities within the town of Milford has been proposed.

The primary concern for this area is to maintain the river's depth for recreational traffic. Money has been allocated by the Army Corps of Engineers for maintenance dredging, but adequate spoil disposal sites have not been located. Developed marine recreation facilities in Milford would probably never be as popular as those closer to Delaware Bay, but they could relieve congestion at the more popular locations.

(Since this area was recommended, a 90-slip marina has been constructed on the Mispillion River at the junction of Route 1 and Route 36.)

Broadkill Beach launch ramp. This privately-owned ramp is located directly on Delaware Bay. It is apparently in poor condition; however, the soft access road precludes actual inspection. A ramp located on Delaware Bay would be useful only during calm weather unless a breakwater is built. There is also the question of shoreline stability in this area that is open to waves from the northeast. Local residents are willing to upgrade the ramp themselves, but they have not yet received authorization to do so.

East bank of the Lewes-Rehoboth Canal at Lewes. This site, to the north of existing developed areas in Lewes, contains a spoil bank, or dike, that runs along the eastern part of the canal and provides fastland near the water. Additional docking facilities to accommodate commercial or recreational vessels are proposed. Construction would be carried out by the town of Lewes.

The expansion of docking facilities in Lewes seems to be a viable option, provided it is carried out in a slow or staged manner. There is now great demand for docking facilities. Water depth is adequate and road access is sufficient. The loss of wetlands could be minimized if piers were designed properly and there would be no problem with subaqueous land rental since the submerged land is part of the federal canal project.

West side of Rehoboth Bay. Proposed is site acquisition or encouragement for private development of launching facilities on the west side of Rehoboth Bay. The Division of Fish and Wildlife is considering developing a launch ramp on Love Creek at Route 24, but it has delayed action because of objections from private interests who believe the free public ramp would hurt business.

Rehoboth Bay is a prime recreational boating area and the west side of the Bay contains a great variety of access points. Much of the boating access to Delaware Bay is now provided by private facilities, such as marinas and private docks. There is little doubt that additional access facilities would be used. The only question is whether the proposed additional access should be provided by the public or private sector.

(Since this area was first discussed, the Division of Fish and Wildlife has abandoned plans to develop a launch ramp facility at Love Creek.)

East side of Rehoboth Bay. The eastern shore of Rehoboth Bay borders Delaware Seashore State Park. Currently, four or five access roads to the Bay exist off Route 1. The

access roads lead to sites for swimming, small-boat launching, and picnicking. The proposal is to develop new launching facilities along the eastern shore of Rehoboth Bay.

Because of shallow water and wetlands on much of the eastern shore of Rehoboth Bay, there are few ideal locations for expansion. In addition, there is the strong possibility of storm damage to facilities in that area. Therefore, the eastern shore may not have the highest priority for facility expansion, except where facilities already exist, such as near the inlet or at Dewey Beach.

Oak Orchard. Presently heavily developed with six or seven private marinas and yacht clubs, there is one public launch ramp at Rosedale Beach and numerous individual docks at private residences in this area. The expansion of marina facilities is proposed.

Resident ownership along the waterfront will limit expansion of marinas and yacht clubs. Existing marinas could probably expand further from shore if demand warranted it, but expansion of parking areas and other service facilities is restricted by insufficient space.

Burton Island/Indian River State Marina. This is the present site of Indian River State Marina which includes a boat ramp, restaurant, bait and tackle shop, and docking space for charter vessels and head boats. Further development of Burton Island, either by the state or through a lease contract with private developers, has been suggested. The marina is currently in poor condition from silting and age.

Money has been allocated for improvements to the facility including dredging, dock repairs, and creation of a walkway to Burton Island. These will open the island to passive recreation and reduce dredging problems in the marina. Modifications are probably necessary to keep the marina and launch ramp in operation.

References

Presentations to the Governor's Task Force on Marine Recreation

Donovan, Jack. Owner of Donovan's Dock. June 5, 1979.

Falk, James M. University of Delaware Sea Grant Marine Advisory Service. April 24, 1979.

Goins, Jack. Division of Parks and Recreation, Department of Natural Resources and Environmental Control. (Telephone Interview.) June 8, 1979.

Lesser, Charles. Division of Fish and Wildlife, Delaware Department of Natural Resources and Environmental Control. December 11, 1978.

Lindquist, Wendy. Division of Economic Development, Delaware Department of Community Affairs and Economic Development. April 24, 1979.

Morse, Phillip. Division of Parks and Recreation, Delaware Department of Natural Resources and Environmental Control. April 24, 1979.

Moyer, William. Division of Environmental Control, Delaware Department of Natural Resources and Environmental Control. January 17, 1979.

Parsons, Dale. Owner of Fisherman's Wharf. June 5, 1979.

Porter, Barbara. Owner of South Shore Marine, Inc. April 24, 1979.

Ratledge, William. Division of Soil and Water Conservation, Delaware Department of Natural Resources and Environmental Control. March 27, 1979.

Redden, J. Patrick. Division of Parks and Recreation, Delaware Department of Natural Resources and Environmental Control. September 9, 1978.

Schmidt, Robert. United States Army Corps of Engineers. March 27, 1979.

Stewart, George, W., Jr. Division of Fish and Wildlife, Delaware Department of Natural Resources and Environmental Control. February 27, 1979.

Bibliography

Boating 78: A Statistical Report on America's Top Family Sport. 1979. Presented jointly by MAREX and NAEBM (National Assoc. of Engine and Boat Manufacturers), 8 pp.

The Coastal Zone of Delaware: The Final Report of the Governor's Task Force on Marine and Coastal Affairs (April, 1970 through October, 1971). 1972. Published by the College of Marine Studies, 464 pp.

Delaware Boating Laws and Regulations. 1975. State of Delaware, House of Representatives, 127th General Assembly. House Bill No. 510 as amended by House Amendments Nos. 1, 2, 3, 4, and 7 and Senate Amendments Nos. 1, 2, and 5. Issued by the Division of Fish and Wildlife, Delaware Department of Natural Resources and Environmental Control, 59 pp.

Delaware Coastal Management Program and Final Environmental Impact Statement. 1979. Prepared by the Delaware Coastal Management Program, Office of Management, Budget and Planning and Office of Coastal Zone Management, NOAA, Department of Commerce, 511 pp.

Delaware Marine Fishing Survey, 1980. 1980. Roy Miller, Division of Fish and Wildlife, Department of Natural Resources and Environmental Control.

Delaware Statewide Comprehensive Outdoor Recreation Plan. 1979. Technical and Community Recreation Services Section of the Division of Parks and Recreation, Delaware Department of Natural Resources and Environmental Control, 268 pp.

Delaware Tourism Policy Study. 1979. Submitted to the Delaware State Travel Service, Division of Economic Development by the U.S. Travel Data Center in Association with Fothergill/Beekhuis Associates. EDA Technical Assistance Grant #01-6-01771-40, 252 pp.

Economic Impact of Cecil County Marinas. (Unpublished.) Cecil County Marina Association, Cecil County, MD.

Federal Aid in Fisheries Restoration Act (Dingell-Johnson). 1950. 16 U.S. Code 777.

Land and Water Conservation Fund Act. 1965. 16 U.S. Code 4601-4611.

Management Alternatives for Dredging and Disposal Activities in Maryland Waters. 1977. Water Resources Administration, Maryland Department of Natural Resources, 88 pp.

Marine Recreational Fishing in Delaware. 1976. Roy Miller, Division of Fish and Wildlife, Delaware Department of Natural Resources and Environmental Control, 28 pp.

Marine Recreational Fishing in Delaware. 1978. Roy Miller, Division of Fish and Wildlife, Delaware Department of Natural Resources and Environmental Control, 27 pp.

The National Survey of Hunting, Fishing and Wildlife-Associated Recreation. 1975. National Analysts, a Division of Booz, Allen, and Hamilton, Inc., Philadelphia, PA. Conducted for the Fish and Wildlife Service, U.S. Department of the Interior.

Preliminary Inventory of Delaware Marinas. (Unpublished.) University of Delaware Marine Advisory Service. Conducted 1978-79.

A Report on the Governor's Conference on Tourism and Recreation (November 15-16, 1977, Dover, Delaware). 1978. Produced by the Delaware Sea Grant College Program, 28 pp.

A Survey of Sportfishing-Related Expenditures in a Selected Portion of the Mississippi Gulf Coast. 1974. Donnie Daniel, Bureau of Business Research, University of Southern Mississippi, Hattiesburg, Mississippi, 22 pp.

Tourism and Recreation Grants. 1975. Economic Development Administration, U.S. Department of Commerce. In Title 13, Code of Federal Regulations, Sec. 305.44.