



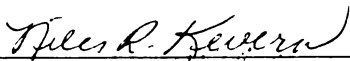
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ANALYSIS OF A MAILABLE URBAN RECREATION
FISHING SURVEY FORM

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ANALYSIS OF A MAILABLE URBAN RECREATION
FISHING SURVEY FORM

By

Ned Earl Fogle

A DISSERTATION

Submitted To
Michigan State University
In Partial Fulfillment Of The Requirements
For The Degree Of

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ABSTRACT

ANALYSIS OF A MAILABLE URBAN RECREATIONAL FISHING SURVEY FORM

By

NED EARL FOGLE

Urban recreational fishing programs are in high demand across the nation in populated urban areas. It has been demonstrated in many states that sport fishing can be provided to urban dwellers in most metropolitan areas where it once was considered unfit for the development of sport fisheries. Professional fishery people who once avoided such areas now look to these areas as necessary fisheries of the future. Development of such fisheries, however, depends upon a well-planned program, including a complete inventory of present and potential recreational resources. The development of an urban recreational fishing program in the highly urbanized areas of southern Michigan has high potential. Severe funding and personnel shortages in the Michigan Department of Natural Resources, however, have blocked doing the essential on-the-ground inventory of this urban fishing potential. To overcome this deficiency, a survey form and explanatory cover letter have been developed to obtain the needed information. The survey form was tested on twenty urban communities. On-the-ground checks of these communities showed that the survey form design was good and that it could be used in place of an on-the-ground survey and save a resource agency on the average (1987 rates) of \$20,000-\$25,000 for the total survey.

ACKNOWLEDGEMENTS

The author wishes to acknowledge with sincere appreciation those colleagues who have stood behind him and helped in this endeavor; both in the development of the survey form and especially for the words of encouragement when the road to achievement became rocky. This appreciation is extended to Drs. Niles Kevern, Carl Latta, and Daniel Talhelm, Mr. Glenn Dudderar, Mr. Harry Westers, Mr. Richard Lehman, Mr. Gale Jamsen, Mr. Douglas Jester and Mr. Tom Doyle. A very special thanks to my secretary, Barbara, for excellent administrative support and thorough attention to detail in preparation of the survey form and dissertation manuscript. And, finally, a special thanks to my guidance committee, Drs. Niles Kevern, Milton Steinmueller, Clifford Humphreys and William Taylor, for their constructive critique and support of my thesis.

TABLE OF CONTENTS

	<u>Page</u>
Abstract.....	ii
Acknowledgements.....	iii
List of Tables.....	v
List of Forms.....	vi
Introduction.....	1
Background.....	2
Methodology.....	10
Results and Discussion.....	33
Conclusions.....	45
Appendix: "Project Analysis; The Use of a Survey form in the Development of a State Urban Recreational Fisheries Program".....	47
List of References.....	69

LIST OF TABLES

	<u>Page</u>
Table 1: 1980 Survey Expenses' Breakdown For One Level IX Staff Person.....	15
Table 2: 1982 Survey Expenses' Breakdown For One Level IX Staff Person.....	16
Table 3: Duplication of the 1980 Survey at 1986 Rates.....	17
Table 4: Duplication of the 1982 Survey at 1986 Rates.....	17
Table 5: 143 Surveys' Cost, Based on 1980 Survey of Two Communities Per Day (i.e., 11-Hour Day), but at 1986 Rates.....	18
Table 6: 143 Surveys' Cost, Based on 1982 Survey of One Community Per Day (i.e., 8-Hour Day), but at 1986 Rates.....	18
Table 7: Mail Survey Cost in 1984.....	19
Table 8: Mail Survey Cost at 1986 Rates.....	20
Table 9: Eleven Communities Previously Surveyed for Fishing Potential Before Receiving Questionnaire.....	34
Table 10: Ten Communities Not Previously Surveyed for Fishing Potential Before Receiving Questionnaire.....	35
Table 11: Fourteen of the 21 Communities Further Questioned About the Clarity of the Survey Form.....	36
Table 12: Percent Response to Mail Survey and Follow-Up Letters.....	39
Table 13: Total Mailing Costs.....	44
Table 14: Cost Comparisons (On-the-ground vs. Mail) Per Community....	45

LIST OF FORMS

	<u>Page</u>
Form 1: Urban Recreational Fishing Inventory.....	22
Form 2: Original Letter Accompanying Inventory Survey Form.....	30
Form 3: Letter Accompanying Testing of Survey Form.....	31
Form 4: Follow-up Letter to Form 3 Letter.....	32
Form 5: Second Follow-up Letter to Form 3 Letter.....	33
Form 6: Revised Cover Letter Which Accompanied the Survey Form Sent to The 122 Additonal Communities.....	37
Form 7: Follow-Up Letter to Revised Cover Letter Sent to the 122 Additional Communities.....	40
Form 8: Additional Follow-Up Letter to the January Letter.....	42

INTRODUCTION

Early in 1972, the Michigan Department of Natural Resources (MDNR) Fisheries Division, entered into a major urban recreational fisheries program to bring recreational fishing into the various urban communities of southern Michigan (Fogle, 1978) 1/. By 1980, some urban fishing projects had been funded. However, state politics and money shortages mandated that funding be equitably distributed among the state's urban area. Fisheries Division's responsibility to this program mandated a method to inventory and prioritize urban fishing needs. Considerable time and effort is required for on-the-ground surveys of urban fishing potential in each community. However, because of other Departmental responsibilities, it was logistically and financially impossible to physically inventory the 143 communities identified by the author as urban communities. A mailable survey form was determined to be the only acceptable alternative. To substantiate this determination, a project analysis was made by the author on the use of a survey form in the development of the State's Urban Recreation Fisheries Program (Appendix A).

The analysis favored a mailable survey as the most feasible alternative to collect the needed information. Such a hypothesis, or thesis, "that

Footnotes:

- 1/ Fogle, Ned E. The author is the Fisheries Division's Recreational Fisheries Program Manager responsible for developing the Division's Urban Fishing Program.

a mailable survey form could be developed to replace costly on-the-ground surveys for inventorying urban recreational fishing potential", however, would have to be tested to determine if it actually would save the state time and money. The testing was comprised of on-the-ground checks against mailed survey forms for each of a group of 21 communities. From the testing it was determined that a mailable survey form would save the state anywhere from \$126 to \$193 per survey. Based on the results from the testing, survey forms were then sent to the rest of the communities (122 [143 minus the 21 already tested]) in the lower part of the state characterized as urban. The total estimated savings to the state were determined to be \$20,000-\$25,000 in wages, travel and meals as well as freeing considerable amounts of the author's time for other projects.

An explanation of why and how Michigan entered into such a program is necessary to help understand the dissertation. The following background explains the urban fishing situation in Michigan and its ramifications to the State's fishing program.

BACKGROUND

Introduction to the problem of wide-spread racial flare-ups across the country in the early 1960's left many large metropolitan areas with devastated ghetto areas and extreme racial unrest. In an attempt to quell the riots and soothe the inner city dweller, the Federal Government searched for key solutions. One solution they discussed was the development of recreational fisheries for the inner big city areas. It was noted by the Outdoor Recreation Resources Review Committee (ORRRC) in 1962, that

center-city residents are among the most outdoor-recreation-deprived groups in the United States. The then Bureau of Sport Fisheries and Wildlife (now the U.S. Fish and Wildlife Service) of the U.S. Department of the Interior, then headed by Secretary of Interior Udall, initiated unique inner-city pilot fishing in six major U.S. cities, aimed at providing needed outdoor recreational activity for the disadvantaged ghetto dweller (Shupp, 1972).

The six cities selected were Washington, D.C.; Portland, Oregon; Ft. Worth, Texas; St. Louis, Missouri; Atlanta, Georgia; and Boston, Massachusetts. The program was administered by the central office in Washington, D.C. and the Bureau's five Regional Offices with cooperation from state conservation departments, city parks and recreation departments, and many volunteer groups (Shupp, 1972).

This urban fishing push by the Federal Government followed a 1968 symposium sponsored by the Bureau of Sport Fisheries and Wildlife in which Dr. John Gottschalk, the Bureau Director, in his opening remarks stated: "...this is a different kind of conference that we are embarking upon. I think it is different for those of us who are engaged in the conservation business, because we have changed the usual orientation from that of talking about how people can manage wildlife, and put it in a different perspective. Perhaps it could be more nearly characterized as trying to determine how wildlife can be made more positively a factor in the lives of people who have relatively little opportunity to see and enjoy wildlife in what we accept as the usual place for wildlife. ...I have high hopes that the interaction that will come from this conference will stimulate new ideas and new thoughts...that our successors will be carrying on over the next 10 or 20 years.

...Our Bureau faces a challenging future. When we first began to think about this problem we asked ourselves the question, Just what is, or what will be the role of the Bureau of Sport Fisheries and Wildlife in an America which is largely urban?

...I am not looking for a lot of pat answers, but I am hopeful there will be a synergistic effect and that we will get the stimulation that will help us start to plan the kind of program that the country most needs and that we are best fitted to administer."

The challenge facing the five regional offices of the Bureau was large. Most of the states did not have much enthusiasm. In fact, many thought it was an amusing program and would not put up any money or help in getting the program going. Managers criticized the program for putting fish of any kind in any kind of place (i.e., flooded streets, stocking fish in small pools) which they considered unnatural (Buterbaugh, personal communication).

Overall, the total program was successful because as long as the Federal funding lasted, the programs continued. However, no cost/benefit analysis was ever completed by the government to determine if the program was good or bad financially. There even were some attempts at additional programs in different cities. One such program was in Oklahoma City. Here, ponds on Tinker Air Force Base were stocked with catfish. Kids were able to use donated fishing equipment and were helped to fish by Air Force personnel (Summerfeldt, personal communication).

Even though U.S. Fish & Wildlife and Air Force personnel worked hard at the project, similarly it was not picked up by the state or local government and faded when the funding ceased. Local apathy and disbelief for such programs by state managers were again primarily responsible for the program's failure as it was for the original six programs.

Of the five governmental programs, only the St. Louis program was successful. Started in 1969, the program was expanded in 1970 in a cooperative effort by the Bureau of Sport Fisheries and Wildlife, the Missouri Department of Conservation, and the St. Louis Department of Parks, Recreation and Forestry with further financial assistance given by the St. Louis Sports Council.

The benefits of the program were explored by Ikeda (1971) in his Master's Thesis. He determined the program was very acceptable in that it did meet many of the inner-city needs, including the need for social interaction both for individuals and groups and also by providing acceptable opportunities for use of leisure time. Other benefits are possible. In their report on "Something's Fishy in the Nation's Capitol" about the return of the Potomac and Anacostia Rivers, Paul Leach and James Rasin, Jr. suggested rediscovery of the pleasures of the rivers, had the potential to lead to considerable savings in energy sources; the result coming from the reduced number of trips from the urban areas to areas of wilderness (Leach, et al., 1981).

The riots in Detroit, which introduced Michigan's inter-city problems, were equally disturbing to Michigan. It is said that about three of every four persons in the United States live in cities, towns, or suburbs; that many people live in the heart of metropolitan areas where there is little

opportunity to fish or enjoy nature (Leedy, 1981). Detroit, along with most of Michigan's other major urban centers fits this category. The State began looking at ways to provide recreation as a salve for its urban problems. During this time Michigan's salmon program had expanded dramatically on the Great Lakes. Seventy percent of the 415 cities in the United States having a population of 50,000 and at least 30 percent of the 520 cities having a population between 25,000 and 50,000 are located on the edge of a river, lake, bay, or ocean. (USDI Heritage Conservation and Recreation Service Publication "Urban Waterfront Revitalization"). All of Michigan's major urban areas have adjacent streams or lakes.

So, persons living in the metropolitan area of the state had become increasingly aware of the Michigan Great Lakes fisheries program and wanted the state to increase its emphasis on fishing programs for their immediate area (Fogle, 1974). Fishing is important to anglers. A study of six northeastern states showed that 93 percent of all northeastern anglers participated in fishing during their youth (Bevins, et.al., 1968). Norman McBride, in his development of a "Strategic Plan for the Development of Freshwater Fisheries in the Capitol District (Albany, Schenectady, Troy areas)" expanded upon Bevins' findings by stating that "It would appear that the formative childhood years exert a major influence on an individual's choice of recreational activity. Therefore, to promote sustained, long-term fishing activity, the main emphasis of the Capitol District Urban Fishing Program must be oriented towards young people" (McBride, 1978). It can be assumed that Great Lakes area anglers are not greatly different than northeastern anglers and that they, likewise, have been influenced by childhood experiences.

A review of assorted fisheries management information by the author revealed that fisheries management in Michigan in the 1800's started in southern Michigan. Little or no management was done in the middle or upper part of the state because there was no demand. In the following years, as the population in the southern towns and cities increased dramatically and transportation media and routes expanded, people were less confined to the population centers. Also, pollution of waterways was becoming more and more evident "up north" because of the escape from stress and pressures of the urban confinement.

As the demand for increased fishing in the north mounted, the Department's management began to shift and focused on the northern areas of the state; because that was where the clean water and fish were. This also was where considerable access was available to the water. With little or no access, little could be done about degraded water quality in the metropolitan areas. Interest in "at-home" fishing among city dwellers became non-existent. If they wanted to go fishing, and could afford to, they went "up north" (Fogle, 1977).

Actually, the buildup to the state's present position with Detroit area fishing stretches back a number of years. In the early and mid-1960's, a program of stocking eatable-sized trout was instituted in many southern Michigan ponds (Tody-Harris, 1965 and 1966, unpublished). At that time, trout also were being supplied for juvenile fish-out ponds (Westerman, 1955, unpublished). It had long been known that the potential for fishing growth was there. Imagine, for example, an area 60 miles long and 40 miles wide. Strung down one side of that rectangular area are two very large

rivers and two very large lakes. The rivers and the lakes are peppered with islands. Both lakes are shallow enough to provide prime spawning and feeding grounds for fish. One lake is considered as the largest single fishery of its kind in the world. Both lakes provide excellent angling for walleye, bass, panfish and catfish and have the capacity for greatly expanded recreational uses. The rivers are large with quality water and abundance of habitat and food. The inland sections of this area have numerous streams and lakes (one county having the fifth largest number of lakes of any county in the state)--all with the capacity for expanded recreational use (Fogle, 1977). Packed onto the adjacent land area are 4.5 million people, about half of all the residents of our state. The area is criss-crossed with a massive network of roadways. Automobile ownership is high, and a system of public transportation covers most of the region. All the elements are available for a truly massive fishery. And this is only the Detroit area. Southern Michigan houses eleven major urban areas, with Detroit being the largest, (Mich. DNR. 1979).

But three problems blocked sport angling success: A) most of the waters were polluted; B) access to the water was in short supply; and C) fishery management programs had traditionally been shunted north, away from this area of the state. Many anglers who had formerly tried their luck here became discouraged, gave up, and took their hooks to more northerly waters (Fogle, 1977).

But then in 1968, a \$335 million Clean Water Bonding Program was approved by Michigan voters. It was the largest financial support ever given to the state's anti-pollution effort. On a dollar-matching basis, the \$335

million stimulated local, state and federal agencies to produce more than \$1 billion in clean water developments, with almost half of the total being put to work in the Detroit metropolitan area. In addition to the public funding, industries in Michigan have invested over \$750 million in their own clean-up systems over the last 10 years, again with about half going into the Detroit area.

The results were dramatic (author's personal knowledge). The waters of Lake St. Clair and western Lake Erie and the St. Clair and Detroit rivers responded to these clean-up efforts. One did not have to be an "oldtimer" to recall the sludge, the oil slicks, or the floating garbage. Today, nearly all of that is gone (author's personal knowledge). The Detroit River once again supports a quality fishery of walleye, white and black basses, yellow perch, freshwater drum and catfish. It now also boasts of salmon and trout.

Detroit was not the only area undergoing such a change. All areas in southern Michigan were experiencing positive water quality changes. Rivers such as the Kalamazoo and Grand not only support high quality cool water fisheries of smallmouth bass and walleye, but also coldwater anadromous runs of trout and salmon. Julie Williams (1982) states that urban fishing is not restricted to population giants. She gives one definition of urban fishing as being within one hour's drive of a city or town. Angling in metropolitan areas takes many forms, depending on fishing and availability of funds. The public all over southern Michigan's urban areas were recognizing that recreational fishing was no longer just a northern opportunity--but available in southern Michigan also and they were growing more and more enthused (Lehman, 1973).

So, in 1972, the Department of Natural Resources designed a plan of action to develop a Metropolitan Fishing Program with primary emphasis on the Detroit area (Fogle, 1983). Major goals and objectives were outlined, planning work groups established, and "Planning and Review" and "Citizen Advisory" groups formed. From this organization, metro fishing proposals were developed providing information on feasibility, scope, benefits and costs, budget outlines, and operational plans. Priorities as suggested by the review and citizens' committees were incorporated into the program.

But Michigan's urban fishing programs, similar to the Federal Government's Urban Fishing Program in the 1960's, bogged down through the late 1970's. Support from the higher eschelon of the Division and Department was low key, at best. Action was stalemated until 1980 when the state legislature appropriated 3.3 million dollars for waterfront fishing recreation projects in southeastern Michigan. This attractive package of funding did not go unnoticed by legislators from other urban areas across southern Michigan. So, within the next year and a half, 1982, there was a legislative directive to develop projects for other urban areas. However, and unfortunately, state financial woes that year froze further funding action for additional recreational fishing projects. This financial crisis continued for several years. But, in 1984, several waterfront fishing facility projects (Ecorse and Wyandotte, Michigan) were funded as the State once again achieved financial stability.

METHODOLOGY

The author, as the person responsible for the state's urban fishing program, clearly had a goal to develop an urban recreational fishing program for the

state to meet the needs and desires of the people. Likewise, the objective to meet this goal was clear; to identify the urban recreational fishing needs in each respective area of eleven urban areas in southern Michigan. The question of "how" was met by first developing a project analysis having a set of alternative options (Appendix A). The alternative options considered were:

Alternative Option 1: Develop a mailable survey form that will provide the data comparable to the on-ground survey (visits to the site) that can be used by the decision maker in determining the urban recreational fisheries needs for southern Michigan.

Alternative Option 2: Do an on-ground survey of recreational fishing needs and potential.

Alternative Option 3: Convince the fishing public that the wilderness concept made it worthwhile to drive north for their fishing experience.

Alternative Option 4: Develop a transportation system, roads or public transportation to take people north for recreational fishing.

Alternative Option 5: Do nothing as the department had in the past.

Alternative Option 6: Plant more fish in southern Michigan to pacify the public.

Since Alternative Option 1 was the alternative chosen as the means to meet the department's goal and objective, it will be treated in full

later. The other alternative options were systematically rejected. The rationale for rejection follows.

Alternative Option 2 is without doubt a very good method of determining the urban fishing needs. But, it is very time consuming and expensive as shown later. Adequate time and money were and are not available to do an on-ground survey. So this was rejected as too costly.

Alternative Option 3 was rejected unequivocally because the public had already stated to the Michigan Natural Resources Commission they wanted recreational fisheries developed in southern Michigan; that they did not want to travel to northern Michigan to fish when adequate water was available to be managed for fisheries in southern Michigan.

Alternative Option 4, to develop a transportation system to take people north for recreational fishing, was rejected for two (2) reasons. First, as for Alternative Option 3, the urban public did not want to have to go north for fishing. Secondly, the cost of developing such a system was cost prohibitive.

Alternative Option 5, which was "do nothing", was rejected as unacceptable. Politically, the department, and particularly Fisheries Division, had to develop a fisheries program for southern Michigan. Sixty percent of the legislative representatives (both House and Senate) are districted in the Greater Metropolitan Detroit area while over 90 percent cover the southern half of the Lower Peninsula. The political armada of the public of southern Michigan mandated action. So, the "do nothing" attitude of the division toward fishing in southern Michigan was a thing of the past.

Alternative Option 6 to plant more fish in southern Michigan to pacify the public was also rejected, in part. Just planting fish was considered a form of hypocrisy and an attempt to patronize the public. The public was now aware of the cleaning of the southern waters and the ability of the Fisheries Division to develop and manage a fisheries. So they wanted all the amenities that go along with planting fish. Thus, the planting of fish became a step in the Fisheries Division's management plan for southern Michigan.

Alternative Option 1 to develop a mailable survey form was determined to be the most feasible first step of action to bring about a development of an urban fishing program.

Mail surveys are inexpensive when compared to physical on-the-ground surveys (on-the-ground surveys being actual physical surveys of a community's recreational fishing potential where all water bodies and potential sites where water bodies could be constructed are physically looked at by the surveyor.) Statistically, there is always a question of validity of the data when a sample is taken. This survey, however, would not sample. Rather, it would be a test to determine if a survey could replace the on-ground survey.

Mail surveys have been a means of collecting information for various studies. To the author's knowledge, no survey to gather the type of information needed for the state urban fisheries program had ever been developed or tried and even if a survey form could be developed, there was no knowledge as to whether it would satisfactorily gather the needed

information and save the state significant funds. One concern was whether the communities could properly interpret the survey form and explanatory letter. However, if such a form could be properly developed, then it reasonably could be used by other natural resource agencies in other states, as well as Michigan.

So, the thesis was proposed "That a mailable survey form could be developed that would replace costly on-the-ground surveys and which would save the state considerable expense and time."

In the development of the 1980 program (see page 10 of background, re: 3.3 million dollars), the demand to come up with projects resulted in considerable effort by one staff and one field person. To develop suitable projects, it was necessary to do on-the-ground surveys of each downriver community. A total of 12 communities were contacted and an on-the-ground survey done for each. Records of time and effort revealed that an average of four hours were required to inventory one community for recreational potential (personal knowledge.) Travel time from Lansing to the downriver community area was about 1½ hours one way. So an inventory day of two communities plus travel time was considered to be 11 hours.

Based on 1980 state hourly rates for level IX biologists (the author's pay level), standard meal rates and 1980 vehicle rates, the total cost of the 12 surveys for one staff person was \$1,180.50. (In these particular surveys, the author was accompanied by the District Field Biologist. With District Biologists at the same pay rate, traveling nearly the same mileage and also claiming meals, the cost figures were doubled. However, for the purposes of comparison, only the author's expenses are shown.)

At two surveys per survey day, a total of six inventory days were needed to complete the surveys. Broken down, cost-wise, each survey cost the Division \$98, or \$196 per survey-day. This breaks down to about \$18 per survey hour. Cost breakdown for the 1980 survey is shown in Table 1.

Table 1: 1980 Survey Expense Breakdown For 1 Level IX Staff Person

	<u>Number Survey Hours</u> <u>Per Survey Day</u>	<u>Number Survey</u> <u>Days</u>	<u>Total</u> <u>Cost</u>
1) <u>Pay Rate Per Hour</u> @ \$13.90/Hour	11	6	\$ 917.40
2) <u>1980 State Meal</u> <u>Rate For Lunch</u> @ \$4.25	<u>Number of Lunches</u> 6		\$ 25.50
3) <u>1980 Mid-Size State</u> <u>Car Rental</u> @ \$0.18/Mile	<u>Average Survey</u> <u>Day Mileage</u> 220 miles round trip	<u>Number Survey</u> <u>Days</u> 6	\$ 237.60
<u>Total Cost of Surveys</u>			<u>\$1,180.50</u>

To develop the 1982 program of projects, another 10 urban communities were surveyed. Included in the survey in this year were communities in Jackson, Battle Creek, Ingham County, Lansing, Eaton County, Delta Township, Jackson County, Kalamazoo, Grand Rapids, Kent County. The 4-hour average survey time determined for the 1980 program was found to be insufficient to complete a survey in these other inland communities. And, at least another hour, and in some cases two hours, were needed. This resulted in the average cost of a community survey being raised to \$163 per community.

With the average survey time raised from 5 to 6 hours, only 2 hours of the working day remained. Travel time to most communities away from the Lansing area ranges from 1 to 2 hours. So a single survey, including travel time, equalled at least 8 hours or a full working day. In this

project a survey-day and a singel survey were equal in cost (at \$163.00) with the hourly rate being slightly more than that for the previous survey with \$20 per hour. Cost breakdown is hown in Table 2.

Table 2: 1982 Survey Expense Breakdown For 1 Level IX Staff Person

	<u>Number Survey Hours</u>	<u>Number Survey</u>	<u>Total</u>
1) <u>Pay Rate Per Hour</u>	<u>Per Survey Day</u>	<u>Days</u>	<u>Cost</u>
@ \$16.69/Hour	8	10	\$1,335.20
1982 State Meal			
2) <u>Rate For Lunch</u>	<u>Number of Lunches</u>		
@ \$4.75	10		\$ 47.50
1982 Mid-Size State	<u>Average Survey</u>	<u>Number Survey</u>	
3) <u>Car Rental</u>	<u>Day Mileage</u>	<u>Days</u>	
@ \$0.18/Mile	136.8 miles	10	\$ 246.24
	Round Traip		
<u>Total Cost of Surveys</u>			<u>\$1,628.94</u>

If a survey were to be done in 1987 similar to the 1980 survey (i.e., 11-hour day with two communities surveyed), but based on 1987 rates (wages, meals and car rental), the cost per hour of survey would amount to \$20.68 (Table 3) for an average cost of a survey of \$113.74 (1/2 of the daily total). If done similar to the 1982 community (i.e., an 8-hour day with one community surveyed, the cost would be about the same, i.e., \$24.45 per hour, but the total cost of one survey would increase to \$195.60 (Table 4).

Table 3: Duplication of the 1980 Survey at 1987 Rates

	<u>Number Survey Hours Per Survey Day</u>	<u>Number Survey Days</u>	<u>Total Cost</u>
1) <u>Pay Rate Per Hour</u> @ \$20.68	11	6	\$1,364.88
State Meal			
2) <u>Rate For Lunch</u> @ \$5.50	<u>Number of Lunches</u> 6		33.00
Small State			
3) <u>Car Rental</u> @ \$0.18/Mile	<u>Average Survey Day Mileage</u> 220 miles round trip	<u>Number Survey Days</u> 6	\$ 237.60
Total Cost of Surveys			\$1,635.48

Table 4: Duplication of the 1982 Survey at 1987 Rates

	<u>Number Survey Hours Per Survey Day</u>	<u>Number Survey Days</u>	<u>Total Cost</u>
1) <u>Pay Rate Per Hour</u> @ \$20.68	8	10	\$1,654.40
State Meal			
2) <u>Rate For Lunch</u> @ \$5.50	<u>Number of Lunches</u> 10		\$ 55.00
Small State			
3) <u>Car Rental</u> @ \$0.18/Mile	<u>Total Day Mileage</u> 136.8 miles	<u>Number Survey Days</u> 10	\$ 277.20
Total Cost of Surveys			\$1,955.64

One hundred and forty three communities were determined to fit within the 11 major urban areas of the lower part of the state. Based on the 11-hour day, two community survey, 72 trips would be necessary to do the on-ground survey. Total cost estimates, based on 1987 indices, would amount to \$18,757 (Table 5). If the surveys were done, based on the 8-hour day, one community survey, 143 trips would be necessary at a total cost of \$28,838 (Table 6).

\$18,757 (Table 5). If the surveys were done, based on the 8-hour day, one community survey, 143 trips would be necessary at a total cost of \$28,383 (Table 6).

Table 5: 143 Surveys' Cost, Based on 1980 Survey of Two Communities Per Day (i.e., 11-Hour Day), But at 1987 Rate

<u>Number Surveys</u>	<u>Number Trips X 11-Hour Day</u>	<u>Total Hours</u>	<u>Rate Per Hour</u>	<u>Total Est. Cost</u>
143	72 X 11	792	\$20.68	\$16,378.56
<u>Mean Mileage*</u>		<u>Total Trips</u>	<u>Total Estimated Mileage</u>	<u>Mileage Rental Rate</u>
153 miles	X	72	11,016	\$0.18
				<u>Total Est. Cost</u>
				\$ 1,982.88
<u>Lunches Per Trip</u>		<u>Total Trips</u>	<u>Lunch Rate</u>	<u>Total Est. Cost</u>
1		72	\$5.50	\$ 396.00
Computed Total Cost of Survey				\$18,757.44

*The 1980 and 1982 trips totaled 2,908 miles for 16 trips giving a mean mileage of 153 miles.

Table 6: 143 Surveys' Cost, Based on 1982 Survey of One Community Per Day (i.e., 8-Hour Day), But at 1987 Rate

<u>Number Surveys</u>	<u>Number Trips X 8-Hour Day</u>	<u>Total Hours</u>	<u>Rate Per Hour</u>	<u>Total Cost</u>
143	143 X 8	1,144	\$20.68	\$23,657.92
<u>Mean Mileage*</u>		<u>Total Trips</u>	<u>Total Estimated Mileage</u>	<u>Mileage Rental Rate</u>
153	X	143	21,879	\$ 0.18
				<u>Total Cost</u>
				\$ 3,938.22
<u>Lunches Per Trip</u>		<u>Total Trips</u>	<u>Lunch Rate</u>	<u>Total Cost</u>
1		143	\$5.50	\$ 786.50
Computed Total Cost of Survey				\$28,382.64

*The 1980 and 1982 trips totaled 2,908 miles for 16 trips giving a mean mileage of 153 miles.

It is important to note that not only is the actual cost of an on-the-ground survey expensive, but it has an additional effect of consuming large amounts of time. Fisheries Division staff workloads are heavy.

Work on a project necessarily uses time which could be spent on another project. Anytime project effort can be more efficient, then the sport fishing public benefits because of reduced public costs.

There are 26 pay periods of 80 hours each in a State Government work year in Michigan. This means that there are 2,080 hours available to work. However, each State employee earns annual leave at a rate set by the State Civil Service Commission. The author's rate is 7.1 hours per pay period, or 184.6 hours per year. Assuming that no time is lost by reason of sick leave, 1,894.4 hours remain for the work year.

At the 1980 survey rate (see Table 5), 792 hours are needed for the survey. This means that 38% of the author's annual time would be needed to complete the survey. At the 1982 survey rate (see Table 6), 1,144 hours are needed to complete the survey, or 60% of the author's time would be needed. These represent the minimum and maximum times needed. In either case, a major portion of one's time would be needed to do on-the-ground surveys for the 143 communities. The cost of the actual mail survey is shown in Table 7.

Table 7: Mail Survey Cost in 1984

<u>Labor Cost - One</u>		<u>Estimated</u>	<u>Total Cost</u>
<u>Secretary</u>		<u>Hours Worked</u>	<u>Minimum - Maximum</u>
@\$9.19/Hour <u>2/</u>	X	32-40	\$294.00 to \$367.00
<u>Mail Surveys Sent</u>		<u>Postal Rate</u>	<u>Total Cost</u>
122	X	@\$0.37/letter	\$ 45.14
Printing Cost for 1,000 forms <u>3/</u>			<u>\$ 50.00</u>
Total Cost of Survey			\$389.12 to \$462.72

Footnotes:

2/ Secretarial costs include mailing out forms and logging in completed forms.

3/ Record on exact cost of 1,000 forms are not available, but it was not more than \$50.00, so \$50.00 is used as the rate.

The cost of a similar mailing, done at 1986 rates for 143 communities, is shown in table 8.

Table 8: Mail Survey Cost at 1987 Rate

Labor Cost		Hours Needed to Handle		Total Cost	
One Secretary		Mailings and Logging of Repls		Minimum - Maximum	
@ \$10.55/Hour		X	32-40	\$364.48	to \$455.60
<u>Mail Surveys Sent</u>			<u>Postal Rate</u>	<u>Total Cost</u>	
143		X	\$0.39/Letter	\$ 55.77	
Printing Cost for 1,000 Forms (Estimated)				<u>\$ 75.00</u>	
Total Cost of Survey				\$495.25 to \$856.37	

Cost alone quickly identifies the benefits of a mail survey over an on-the-ground survey. Time, however, is very important in that anywhere from 38 to 60 percent of a staff person's time can be freed up for other projects by a satisfactory mail survey; depending on the extent of surveys needed.

The development of an urban fishing program was of prime importance but a determination of the potential fishery was necessary before priorities for management could be developed. Because of the importance of determining the urban fishing potential, a way to accomplish this was important. How to do it was the question. The thesis that a survey form could be developed and could be used in lieu of an expensive on-the-ground survey was initiated.

It was determined that the form would have to be designed so that municipalities completing the survey form would not only list existing waters, but also list areas having the potential for development of waters where a fishery could be established. The form would have to be so designed that it would provide information on the character of the existing water body and the sociological characteristics of the local community. Natural Resources

Projects funded by special legislation appropriation, e.g., as urban fishing projects, require attention to environmental, political, constitutional, ethical, sex, age and handicap constraints as well as others. Such data, therefore, were necessary to collect. The form also would need to provide a means for the surveyee to identify where a pond or other type water body could be constructed. And finally, the form would have to provide data in such a manner that it could be computerized for analysis, prioritization of projects and storage for easy retrieval.

With this type survey, certain advantages could be recognized (1) survey clientele difference--not a general public, but officials of government; (2) factual information--not recall or opinion; (3) response means possible monetary award to community; and (4) also other type award-benefits.

Other survey forms utilized by various DNR divisions and also by M.S.U. Fisheries & Wildlife researchers were reviewed. Personal communication was made with Gale Jamsen ^{4/}, Douglas B. Jester ^{5/}, and Dr. Daniel Talhelm ^{6/}, on construction of a format that would answer the needed questions. And, the following form was designed, (Form 1).

Footnotes:

^{4/} Gale Jamsen, Information Program Manager, Michigan DNR, Fisheries Division, Staff, Lansing, Michigan.

^{5/} Douglas B. Jester, Program Services Manager, Michigan DNR, Fisheries Division Staff, Lansing, Michigan.

^{6/} Dr. Daniel Talhelm, formerly with the Fisheries & Wildlife Department, M.S.U., East Lansing, Michigan.

Form 1:

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
FISHERIES DIVISION

URBAN RECREATIONAL FISHING INVENTORY

SAY YES TO MICHIGAN!

FISHING

INSTRUCTIONS

Complete one form for each recreation fishery or potential fishery. Refer to criteria listed below and on reverse side of this page. Permission is granted to reproduce blank forms for reporting additional fisheries or you may obtain more forms by contacting--Department of Natural Resources, Fisheries Division, Box 30028, Lansing, Michigan 48909, (517) 373-1280.

DNR USE ONLY -- Please do not write in these columns.

Identification Block -- Please fill out completely; county, government (for example: Eaton County, Delta Township, Dept. of Parks and Recreation); park/facility (here the facility may be other than parks land. See No. 25 of instructions. If the area, for example, is school land, give the name of the school); contact person (it is important to us to know position of person -- for example; if it is park director, this gives us a contact point in case the present director should move to a new job); and address (of the government) along with telephone number.

Questions:

1. Water body may be a stream, lake, pond, public swimming pool, gravel pit, borrow pond, or other.
2. Self-explanatory.
3. For example, streams and lakes would be natural unless man made. If the subject water body is of such nature, then you would mark "natural". However, a dam would create a man made impoundment and therefore would be considered impounded. Any pond that was created by digging out would be listed as artificial. A swimming pool, borrow pit or gravel pike likewise would be listed as artificial.
4. Run-off means from surface, such as from rain or from a stream. Spring-fed means from spring(s) flowing to or supply the water body. Ground water means from underneath, i.e., water table that effects water body level, and finally, municipal supply, i.e., from the hydrant. This data will help determine the type of species of fish feasible for the respective water body

Form 1. Continued (Page 2)

5. Deepest depth from surface of water to interface with bottom.
6. Example (see Figure 1 symbolizing a pond) Figure 1.
 0-3' -- area of A in percentage
 of total;
 3-5' -- area of B in percentage
 of total;
 over 5' -- area of C in percentage
 of total.
7. This question is somewhat subjective but we need to have some type handle on whether or not the shoreline is conducive to fishing. Steep would be something considered difficult if not impossible to fish from. Whereas in a shallow situation, there is no bank. Give the percentage, relative to the total shoreline, of each. Total should equal 100%.
8. Marshy would be soft, water-covered ground with perhaps some type aquatic vegetation such as cattails or some other aquatic vegetation, in other words, wet. Beach would be considered as sand. Rocky would be anything from gravel to big rocks. Mud would be those areas where the shoreline is mud without any type vegetation.
9. Most categories are self-explanatory. Some that may not be are:
 - B. Safety ladders -- ladders from the water to a pier or dock that would permit a person to get out of the water.
 - D. Handicapped access -- i.e., can wheelchair get to facilities or can someone with crutches get there.
 - J. Hard surfaced shore -- are there walkways (concrete, blacktop, etc.) at (along) the water's edge.
 - M. Modifications of railings are breaks in the railings so persons in wheelchairs can fish.
10. Self-explanatory.
11. A. Bank stabilization -- has anything been done to stabilize the banks if they are steep or marshy -- i.e., riprap put in, walkways been created, banks sloped and seeded or the like.
 B. Is there a program to control weeds and/or algae, i.e., manual removal of some type or chemical treatments.
 C. None -- self-explanatory.
 D. Other -- anything else that has been done. Please explain.

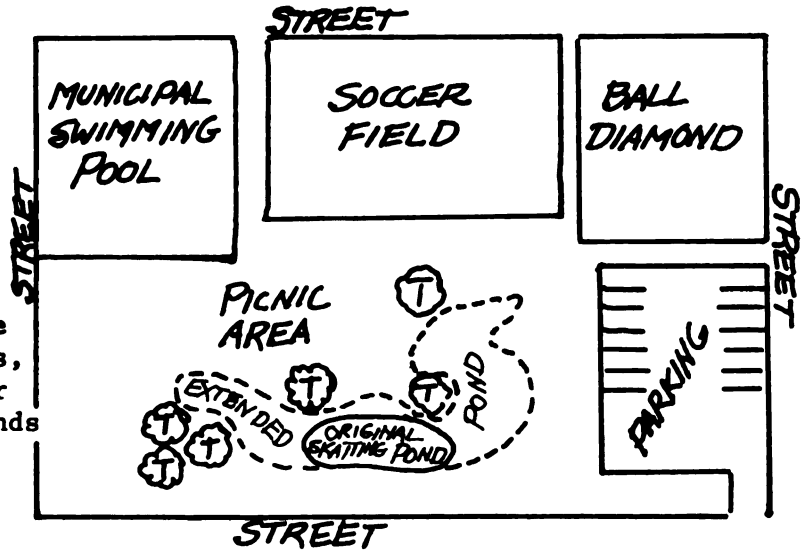
Form 1. Continued (Page 3)

12. Answer, yes, if there is any type of fishing at any time.
13. If no counts have ever been made, please make a guess at the amount of fishing occurring, i.e., one fisherman per day, 10 fishermen per day, etc.
14. For the most part self-explanatory. Bulkhead may be an unfamiliar term. Simply, a bulkhead is a raised stabilized shoreline. As an example, one type bulkhead is constructed by driving sheet piling side-by-side along the water's edge, filling in behind with earth and capping with a cement walkway.
15. 16., 17. Self-explanatory.
18. Do you limit fishing to certain age groups, i.e., to only children or to only senior citizens or etc.?
19. Do you limit catch in any manner, i.e., number of species, season, daily bag, annual bag or other?
20. Do you limit size of fish caught in any manner, i.e., species, season or other?
21. Who does fishing? Is it children? Is it primarily by senior citizens? Please give percentages. Mark as many categories as appropriate.
22. Please give percentages. Mark as many categories as applicable.
23. This may be difficult to judge in some cases but easy in others by fact of location of angling. If you believe it is a mix, mark all categories accordingly. However, if it is primarily one category, mark only that one.
24. This question continues from question No. 12. It is generally self-explanatory. However, it is an important question relative to developing a recreation program for a community. For this reason, the explanation category is very important.
25. A water body for fishing will fit in in almost any place there is open space not being utilized. Most people picture a pond as a rectangle or saucer-shaped. However, a fish-out pond can be any shape and actually a ribbon-shaped pond is most ideal for fishing. The accompanying figure depicts how a pond could be constructed in a neighborhood park that perhaps seemingly to some would not have room for a pond. The heavy dotted line outlines where a pond could be constructed without moving one tree. The skating pond has

Form 1. Continued (Page 4)

has been both a nice warm-weather fishing pond and a much improved skating pond.

In responding, to the question, please consider local parks, open school lands or any other public lands when a water body could be fitted in.



26. See No. 25.
27. A water supply may be a stream, springs or a municipal water supply.
28. This is, of course, very speculative. I believe, however, that one can get an idea of potential fishery use by looking at use of other area recreational facilities in the area. Please give your best estimate.
29. Similar to No. 28 this is speculative. But again would depend upon the associated community structure. Please give your best guess in percentages.
30. Similar to No. 29.
31. This question refers to the community attitude as a whole and should not reflect just the attitude of one individual or small group of individuals. You are welcome to document a spread of attitudes including that of any board or commission.
32. Self-explanatory.
33. One of our goals in the development of an urban fishing program is to develop interpretative programs of fishing instruction. Instruction of young people in the classroom would be one method of doing this. We would like to get an idea of your community's attitude in this regard. Do you have any ideas?
34. Self-explanatory.
35. Quite often a community will have laws, ordinances, regulations, biases, etc., that might be in conflict with the development of a recreational fishing program. We would be very interested in what these might be to assess potential impact or conflicts.

Form 1. Continued (Page 5)

URBAN RECREATION FISHING INFORMATION
PLEASE READ INSTRUCTIONS BEFORE COMPLETING FORM

County	Contact Person
Government	Address
Park/Facility	Telephone: Area Code /

1. Water body exists in park or facility.

A. Yes B. No

If "No", continue with number 25

2. Water body is a:

A. Lake B. Pond C. Stream

D. Other

3. Water body is:

A. Natural B. Impounded

C. Artificially Constructed

4. Water supply is from:

A. Run Off B. Spring-fed

C. Gound-water D. Municipal Supply

E. Other

5. Maximum depth in feet:

6. Depth in percentage:

0-3	_____	%
3-5	_____	%
5-10	_____	%
10-15	_____	%
Over 15 feet	_____	%

7. Bank or shoreline type is:

Steep _____ %

Shallow (lowly slated or flat) _____ %

8. Shoreline composition percentage:

Marshy	_____	%
Beach	_____	%
Rocky	_____	%
Mud	_____	%

9. Man-made features:

A. Railings
B. Safety Ladder
C. Lifeguards
D. Handicapped Access
E. Restrooms
F. Trash Containers
G. Parking
H. Picnic Area
I. Boat Ramps
J. Hardsurfed Shore
K. Fishing Piers
L. Fish Cleaning Facility
M. Railings with fishing modifications
N. Other

10. Present fish population:

A. Carp
B. Goldfish
C. Channel Catfish
D. Bass
E. Bullheads
F. Rock Bass
G. Pike
H. Crappies
I. Sunfish
J. Trout
K. Other
L. Don't Know
M. None

Form 1. Continued (Page 6)

11. Shoreline and water management

- A. Bank Stabilization
 B. Weed and Algae control
 C. None D. Other

Explain: _____

12. Fishing done at site:

- A. Yes B. No If "No" continue
 with No. 24

13. Estimate the annual days of fishing:

14. Type of Public Access for fishing:

- A. Walk-in
 B. Boat
 C. Dock
 D. Fishing Pier
 E. Bank
 F. Bulkhead
 G. Other

15. Fish stocking done:

- A. Yes B. No

16. Number...and species stocked:

17. Stocking schedule:

- A. Annual
 B. Monthly
 C. Weekly
 D. Other (explain "other")

18. Age limit on fishing:

- A. Yes (explain "Yes")
 B. No

19. Catch limit on fishing:

- A. Yes (explain "Yes")
 B. No

20. Size limit on fishing:

- A. Yes (explain "Yes")
 B. Boat

21. Age mix of Anglers:

- A. Children _____ %
 B. Adolescents _____ %
 C. Adult _____ %
 D. Senior _____ %
 Citizen _____ %

22. Ethnic mix of Anglers:

- A. White _____ %
 B. Black _____ %
 C. Hispanic _____ %
 D. Other _____ %

23. Income mix of Anglers:

- A. Upper _____ %
 B. Middle _____ %
 C. Lower _____ %
 Continue with number 31.

Form 1. Continued (Page 7)

24. Why no fishing at water area:

- A. No fish B. No access
 C. Dangerous (explain below)
 D. Privately owned
 E. Municipal water supply
 F. Closed to fishing (explain below)
 G. Other (explain below)

Explanation: _____

25. Facility or park containing area where water body may be created.

- A. Yes B. No

If "Yes" give location of area: _____

 Area configuration: _____

26. Association of number 25 if "Yes"

- A. School B. Park
 C. Private D. Other

27. Water supply available?

- A. Yes B. No

Explain if "Yes": _____

28. If a fish-out pond was developed what would be a ballpark estimate for annual Angler Days of use?

29. What would be the age mix of Anglers?

- A. Children _____ %
 B. Adolescent _____ %
 C. Adult _____ %
 D. Senior _____ %
 Citizen _____ %

30. What would be the ethnic mix of Anglers?

- A. White _____ %
 B. Black _____ %
 C. Hispanic _____ %
 D. Other _____ %

31. What is the attitude of the community toward recreational fishing?

- A. Good B. Bad
 C. Indifferent

32. Would the community finance the construction of fishery projects?

- A. Totally
 B. Partially
 C. Not at all

Explain your answer:

33. Would the community be interested in having fishing education programs?

- A. In Schools
 B. As Community Projects
 C. Other (explain)

 D. No (explain) _____

Form 1. Continued (Page 8)

34. What community groups would be willing to work or push for fishing projects?

- A. Sportsman Group B. Service Clubs C. Business Group
D. Chamber of Comm. E. Other

35. What political, legal and/or social constraints should be considered?

SIGNATURE

TITLE

DATE

The survey was designed with two basic parts; (1) Instructions for completing each question (the first two pages) and (2) the urban recreational fishing information (the last two pages). Because interpretation of a question can vary widely between individuals the inclusion of a comprehensive set of instructions were provided as a means to keep misinterpretation of the survey form to a minimum. The public, in general, also does not understand the basic requirements needed for developing a fisheries. Through the instructions, various words and phrases used in the survey form were defined.

The informational questions of the survey form asked for data needed for each community to develop a prioritized inventory. The survey asked for physical information on existing water bodies and also for information on potential water bodies. It also asked sociological questions pertaining to economics of the community, e.g., regulations and ordinances, ages of angling public, income of angling public, ethnic mix, attitude of the

Although the survey form would provide the data needed on recreational fishing for a community, it would not tell this community why such data were needed. Community administrators are busy people. It was assumed they would probably place the request at low priority unless something were to be gained. Therefore, a cover letter was needed to explain the purpose of the survey form. The following is the cover letter which accompanied the survey form and which explained the survey form; how the data would be utilized to develop the state's urban fisheries program and the possibilities of money for facilities in the community. (Form 2).

Form 2.

July 26, 1982

Gentlemen:

Urban recreational fishing programs are being developed in many urban areas around the country. Michigan's program, which was started in 1972, continues to expand as one of the leading programs in the nation.

One of the major obstacles to statewide development of the program, however, is the lack of identification of fishing potential in the various urban communities around the southern portion of the state. Most communities are financially unable to develop major recreational fishing programs.

Fisheries Division's approach to this problem is to look for sources of state and federal funding to aid the local community. However, funding of urban fishing programs depends on the identification and establishment of priorities of urban recreational fishing potential. This can only be accomplished by an organized survey of all the urban communities.

The enclosed questionnaire is proposed to accomplish this survey and eliminate a time consuming and expensive on-the-ground survey. Your response will not only help us complete our inventory but also will help your community identify the various fisheries potential you have available. With good data on fishing need and with established priorities, we will be in a position to take advantage of financial opportunities as they become available to develop the urban fisheries in your area.

An inventory form should be submitted for each opportunity available in your community. For example, if you have two ponds, a stream and a vacant public lot where a pond could be built, then four inventory forms would be submitted; one for each. Please do not feel that you must have engineering data (for example, on question No. 5 - maximum depth in feet) for answering these questions. We would welcome your best estimate. Of course, if you have measured data available, so much the better. On many of the questions an explanation is asked for.

If more writing space is needed, please feel free to enclose an extra sheet of paper with your response. If I have not included enough forms, please feel free to duplicate as needed (or if you wish, call me at 517-373-1280 for additional survey sheets).

Since I am under a time demand with this survey, I would be very appreciative if it could be completed and returned to me by late August. If you have any questions, please call me at the above number.

Thank you for your time and effort.

Sincerely,

NEF:bjw
Enclosures

Ned E. Fogle
Recreational Fisheries Specialist
FISHERIES DIVISION

Eleven communities, chosen from southeastern communities already having had an on-the-ground survey, were sent the letter, along with the survey forms to test both the survey form and the letter. Recreational directors or other persons who had been contacted for the on-the-ground survey had changed in all but three of the 11 communities. However, to eliminate the chance that those now responsible might be aware of the on-the-ground survey and believe they did not have to respond, a letter of explanation was sent (Form 3).

Form 3.

July 26, 1982

Although I've already done a pretty thorough "on-the-ground" survey of your community, I hope you will bear with me and take the time to accurately complete the subject survey. I need to test this survey form to determine if it will do the job I need it to do. It is the main part of my Doctorate Thesis as well as the survey form I want to be able to use to collect the state's urban fishing data.

Thanks in advance for your help, and if you have any questions, please call me at 517-373-1280.

Sincerely,

NEF:bjw
Enclosures

Ned E. Fogle
Recreational Fisheries Specialist
FISHERIES DIVISION

Ten other communities not having had an on-the-ground survey also were sent survey forms along with the explanatory cover letter. In the case of communities previously surveyed, it was only necessary to compare the returned survey forms with the already completed on-the-ground survey. For the other communities not yet surveyed, contact was made with respective recreation and park directors to do an on-the-ground survey subsequent to the respective community returning the completed survey forms.

Initially, 10 of the 21 communities tested responded to the survey request. A follow-up letter which was sent to the non-respondents, was successful in getting all but five responses (Form 4).

Form 4

December 14, 1982

On July 26 of this year, I asked if you would provide information to help me complete a Department survey on urban fishing potential for your respective area. A copy of that letter is enclosed for your information.

To date, I have not received a reply from your community. Would you please take some time and complete the necessary survey forms to provide me with information. Please call me if you have any questions because I would like to complete this survey as soon as possible and I need your response to do it.

Thank you very much.

Sincerely,

Ned E. Fogle
Recreational Fisheries Specialist
FISHERIES DIVISION

NEF:bjw
Enclosures

The five non-respondents were then sent another letter which was successful in getting the final five completions (Form 5).

Form 5

February 17, 1983

Only July 25th and December 14th of 1982, I asked if you would provide information to help me complete a Department Survey on Urban Fishing potential for your respective area. Copies of these letters are enclosed for your information.

To date, I have not received a reply from your community. Would it be possible for me to meet with you regarding this particular subject?

Thank you for your reply.

Sincerely,

NEF:bjw
Enclosures

Ned E. Fogle
Recreational Fisheries Specialist
FISHERIES DIVISION

RESULTS AND DISCUSSION

Twenty-one communities that were sent the survey forms responded with completed survey forms. Eleven communities (Table 9) had on-the-ground surveys done before receiving the questionnaire survey. Ten communities (Table 10) did not have on-the-ground surveys before receiving the questionnaire survey. Of the previously surveyed group, one community, Grosse Isle, responded with a letter explaining that they had no potential. A phone call to Grosse Isle explaining that an on-the-ground survey had been done and there was potential with the surrounding Detroit River brought out a more positive attitude. The community responded by sending a completed survey.

Table 9: Eleven Communities Previously Surveyed for Fishing Potential Before Receiving Questionnaire

Community	Questionnaire	Forms Correctly	Water Bodies Noted	
	Returned(Yes No)	Filled Out(Yes No)	Available	Potential
Wyandotte	Yes	Yes	X	
Riverview	Yes	Yes	X	
River Rouge	Yes	Yes	X	
Detroit	Yes	Yes	X	
Trenton	Yes	Yes	X	
Southgate	Yes	Yes	X	
Ecorse	Yes	Yes	X	
Lincoln Park	Yes	Yes	X	
Grosse Isle	Yes	Yes	X	
Forest Park	Yes	Yes	X	X
Woodhaven	Yes	Yes	X	
Total	11	11	11	1

Survey forms from the communities of Wyandotte, Riverview, River Rouge, Detroit, Trenton, Southgate, Ecorse, Lincoln Park, Grosse Isle, Forest Park and Woodhaven were checked against previous on-the-ground surveys.

In all cases, the mail survey forms were completely and correctly filled out, and provided the same information as that obtained in the on-the-ground surveys. Each community listed all situations where water was involved. However, only one community, Forest Park, listed a situation where a water body--a pool--could be created. Comparisons of the survey forms with the on-the-ground survey showed that all the other communities documented all water bodies revealed in the on-the-ground survey, but missed the potential areas where new waterbodies could be developed.

The 10 communities that had not been previously surveyed on-the-ground were then visited and on-the-ground surveys made.

Table 10: Ten Communities Not Previously Surveyed for Fishing Potential Before Receiving Questionnaire

Community	Questionnaire	Forms Correctly	Water Bodies Noted	
	Returned(Yes No)	Filled Out(Yes No)	Available	Potential
Ingham County	Yes	Yes	X	
Lansing	Yes	Yes	X	
Eaton County	Yes	Yes	X	
Delta Township	Yes	Yes	X	
Jackson County	Yes	Yes	X	
City of Jackson	Yes	Yes	X	
Kalamazoo County	Yes	Yes	X	
Grand Rapids	Yes	Yes	X	
Battle Creek	Yes	Yes	X	
Kent County	Yes	Yes	X	
Total	10	10	10	0

Appointments were made with respective parks and recreation directors. The subsequent on-the-ground surveys revealed that, similar to the other previous 11 communities, the remaining 10, likewise, had done a good job with the mail survey forms. In all cases the mail survey forms provided exactly the same data as revealed in the on-the-ground surveys and were completed fully, providing the data needed by the department. All water bodies within their respective areas were completely documented on the mail survey forms.

However, again potential pond construction was not documented by any of the communities although the subsequent on-the-ground surveys showed that each community had public land holdings such as parks or other vacant land that had the potential for constructing fish-out ponds.

Personal contacts were made by the author with 14 (including the 10 not previously surveyed) of 21 communities asking the following two questions: (1) were the survey forms clear as to what data were needed; and (2) was the cover letter adequate to explain the survey form's needs? (See Table 11.)

Table 11: Fourteen of the 21 Communities Further Questioned About the Clarity of the Survey Form

Community	Survey Forms Clear		Cover Letter Adequate	
	(Yes)	(No)	(Yes)	(No)
Ingham County	X		X	
Lansing	X		X	
Eaton County	X		X	
Delta Township	X		X	
Jackson County	X		X	
City of Jackson	X			X
Kalamazoo County	X		X	
Grand Rapids	X			X
Battle Creek	X			X
Kent County	X			X
Wyandotte	X		X	
Trenton	X		X	
Ecorse	X		No Comment	
Detroit	X		X	

To the first question, 14 answered "Yes, the survey form was very clear".

To the second question, "Was the cover letter adequate?", nine answered "Yes". Four answered "No", and one did not comment. The four communities that answered "No" to the second question also were the communities that had situations where ponds could be constructed but did not provide survey information to the effect.

As a result of the testing of the survey form with the positive response from the test units of government, the author considers the survey form a valid form. The cover letter of explanation was determined, however, to have been deficient in explaining how potential new ponds could be developed. So the cover letter was revised to correct this deficiency. The survey form subsequently was mailed to 122 additional communities (143 minus the 21 already surveyed) along with the revised cover letter more explicitly explaining the importance of the construction of ponds as urban recreational fishing spots (Form 6).

Form 6

August 25, 1984

Gentlemen:

Urban recreational fishing programs are being developed in many urban areas around the country. Michigan's program, which was started in 1972, continues to expand as one of the leading programs in the nation.

One of the major obstacles to statewide development of the program, however, is the lack of identification of fishing potential in the various urban communities around the southern portion of the state. Most communities are financially unable to develop major recreational fishing programs. Fisheries Division's approach to this problem is to look for sources of state and federal funding to aid the local community.

However, funding of urban fishing programs depends on the identification and establishment of priorities of urban recreational fishing potential for each identified community. This can only be accomplished by an organized survey of all the urban communities.

The enclosed questionnaire is proposed to accomplish this survey and eliminate a time consuming and expensive on-the-ground survey. Your response will not only help us complete our inventory of respective community fishing potential, but also will help your community identify the various fisheries potential you have available. With good data on fishing need and with established priorities, we will be in a position to take advantage of financial opportunities as they become available to develop the urban fisheries in your area.

An inventory form should be submitted for each opportunity available in your community. For example, if you have two ponds, a stream and a vacant public lot where a pond could be built, then four inventory forms would be submitted; one for each. Please do not feel that you must have engineering data (for example, on question No. 5 - maximum depth in feet) for answering these questions. We would welcome your best estimate. Of course, if you have measured data available, so much the better. Also, do not believe that you must have a planner to identify sites that would make a pond. We can do an evaluation of feasibility at a later date. Is there vacant land that could be purchased with room to construct a 1/2- to 2-acre pond? If so, include it. Is there a park where recreational activities could be rearranged to allow for construction of a pond, or do you already have a pond that could be developed for fishing? If so, include it. Any natural water body should be included. Do you have a municipal pool that could be used off-season as a fish-out pond for a kids' fishing derby? If so, include it. Please don't let liability scare you out of submitting a proposal. This can be dealt with.

We want to know what recreational fishing could be developed in your area.

On many of the questions an explanation is asked for. If more writing space is needed, please feel free to enclose an extra sheet of paper with your response. If I have not included enough forms for the number of potential fishing possibilities, please feel free to duplicate as needed (or if you wish, call me at 517-373-1280) for additional survey sheets).

Since I am under a time demand with this survey, I would be very appreciative if it could be completed and returned to me by late September. If you have questions, please call me at the above number.

One final note, I realize work schedules increase substantially with the arrival of the summer recreational period. You will be very busy. Many of you will decide you don't have time to do the survey and will put it off. I hope that I can impress on you that this survey is for your community's benefit as state funding becomes available to do these kinds of projects. So far, nearly \$5 million has been spent. We have already funded a number of projects along the state's east side in Detroit, Ecorse, Trenton and Erie Township. Two additional projects, in Ecorse and Wyandotte, are presently under construction. Local legislators are very supportive of these type projects and we will see additional funds made available. I am very interested in projects in other urban communities. However, I cannot develop projects if I don't know a community's needs and potential.

So, in reiteration, this survey is my record of your community. Be as comprehensive as possible. Stretch your imagination and fill out a survey form for any possibility.

Thank you for your time and effort.

Sincerely,

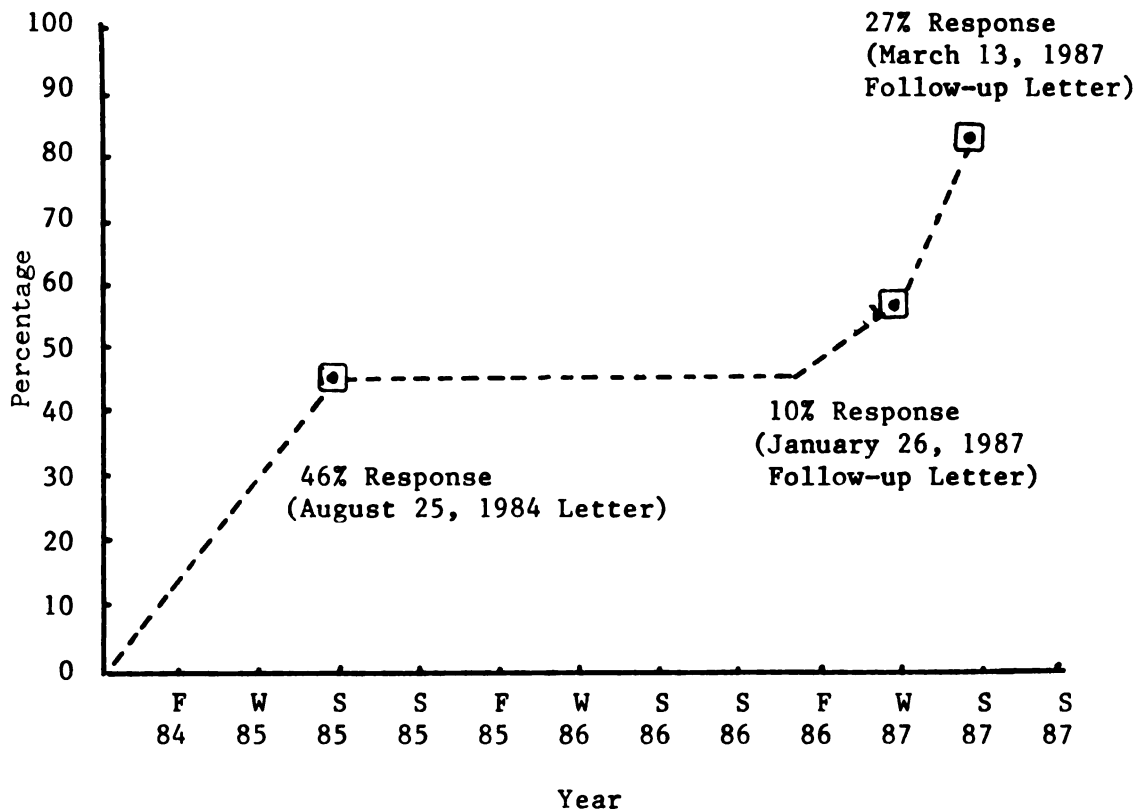
Ned E. Fogle
Recreational Fisheries Program Manager
FISHERIES DIVISION

NEF:bjw
Enclosures

The cost to Fisheries Division for the mailing of the survey at 1986 rates was determined to be between \$468 to \$553. The cost included printing of the survey form, actual mailing costs, and personnel time to do the mailings (see footnote in Table 7).

Although the 122 questionnaires were sent out in mid-1984, only 57 (46%) were returned that following fall and winter. Priority adjustment of the author's programs prevented a follow up which had been planned. No action was taken to follow up for over a year and a half. Without the follow up, it was obvious the questionnaires were discarded or filed by the respective communities. It is the author's personal experience, as a member of the bureaucracy, that questionnaires reaching a bureaucracy, if not responded to in a relatively short period, are put aside and eventually discarded.

Table 12: Percent Response to Mail Survey and Follow-Up Letters



After a year and a half of no action, the author's job priorities once again permitted him to undertake action to complete the survey. The 1984 letter (see Form 6) was slightly revised with a new lead paragraph and sent on January 26, 1987 along with copies of the survey form to the 65 non respondents to the 1984 letter (Form 7).

Form 7

January 26, 1987

Gentlemen:

This letter is sent to you for response. If you are not the appropriate individual to respond, would you please forward it accordingly. Thank you in advance for your consideration and time.

Urban recreational fishing programs are being developed in many urban areas around the country. Michigan's program, which was started in 1972, continues to expand as one of the leading programs in the nation.

One of the major obstacles to statewide development of the program, however, is the lack of identification of fishing potential in the various urban communities around the southern portion of the state. Most communities are financially unable to develop major recreational fishing programs. Fisheries Division's approach to this problem is to look for sources of state and federal funding to aid the local community. However, funding of urban fishing programs depends on the identification and establishment of priorities of urban recreational fishing potential for each identified community. This can only be accomplished by an organized survey of all the urban communities.

The enclosed questionnaire will accomplish this survey and eliminate a time consuming and expensive on-the-ground survey by the division. Your response will not only help us complete our inventory of respective community fishing potential, but also will help your community identify fishing need and and with established priorities, we will be in a position to take advantage of financial opportunities as they become available to develop the urban fisheries in your area.

An inventory form should be submitted for each opportunity available in your community. For example, if you have two ponds, a stream and a vacant public lot where a pond could be built, then four inventory forms would be submitted; one for each. Please do not feel that you must have engineering data (for example, on question No. 5 - maximum depth in feet) for answering these questions. We would welcome your best estimate. Of course, if you have measured data available, so much the better. Also, do not believe that you must have a planner to identify sites where a pond could be constructed. We can do an evaluation of feasibility at a later date; just identify open areas where you think a one- two- or three-

acre pond could be dug or constructed. Perhaps you have a park where recreational activities could be rearranged to allow for construction of a pond, or do you already have a pond that could be developed for fishing? If so, include it. Any natural water body should be included. Do you have a municipal pool that could be used off-season as a fish-out pond for a kids' fishing derby? If so, include it. Please don't let liability scare you out of submitting a proposal. Many communities now have ponds for fishing which are insurance covered at only a minimal increase in cost over their former coverage.

We want to know what recreational fishing could be developed in your area.

On many of the questions an explanation is asked for. If more writing space is needed, please feel free to enclose an extra sheet of paper with your response. If I have not included enough forms for the number of potential fishing possibilities, please feel free to duplicate as needed (or if you wish, call me at 517-373-1280 for additional survey sheets).

I would be very appreciative if your response could be completed and returned to me by mid-February or earlier, if possible. This will save me much time and effort in calling on you personally. If you have questions, please call me at the above number.

One final note, I realize most work schedules of government employees are usually pressing and that you are very busy. Many of you will decide you don't have time to do the survey and will put it off. I hope that I can impress on you that this survey is for your community's benefit as state funding becomes available to do these kinds of projects. So far, over \$7 million has been spent on urban recreational fishing projects in Michigan. We have already funded a number of projects along the state's east side in Detroit, Ecorse, Trenton, Wyandotte and Erie Township and on the Grand River from Grand Rapids to Lansing. We are now looking at other locations for funding in Jackson, Belleville, Bay City and Saginaw. Local legislators are very supportive of these type projects and funds can be obtained. I am very interested in projects in other urban communities. However, I cannot develop projects if I don't know a community's needs and potential.

So, in reiteration, this survey is my record of your community. Be as comprehensive as possible. Stretch your imagination and fill out a survey form for any possibility. Again, please call me on any questions you might have.

Thank you for your time and effort.

Sincerely,

Ned E. Fogle
Recreational Fisheries Program Manager
FISHERIES DIVISION

NEF:bjw
Enclosures

By mid-February 1987, 12 responses had been received; a disappointing response considering the good response in the early testing.

So, a follow up letter was sent on March 13, 1987 (Form 8). By March 31, 22 additional responses had been received bringing the total response to the January 1987 letter to 34. Thirty-one communities had not yet responded.

Form 8

March 13, 1987

Gentlemen:

On January 26, 1987, the enclosed letter was sent to your unit of government relative to potential development of urban fishing in your area. As of this date, we have not heard from you. We're wondering if you did not receive the January 26th letter or whether you are not interested in development a recreational fishing program in your community.

We would be very glad to answer any questions you might have about the state's program. It appears that funding possibilities for urban fishing projects around the state are becoming more and more positive and that we will be able to work with the communities in developing beneficial programs.

Thank you for your attention.

Sincerely,

Ned E. Fogle
Recreational Fisheries Program
Manager
FISHERIES DIVISION
517-373-1280

NEF:bjw
Enclosure

However, by early May, another 11 response had come in, bringing the total yet to respond down to 20.

The additional letters needed resulted in an unexpected additional cost (Table 13). The January 26, 1987 letter cost \$59.86. The March 13, 1987 letter cost an additional \$51.53. It is anticipated that one more letter will have to be sent to perhaps 20 communities at a cost of \$21.48. It is estimated 5-10 communities will have to be called by telephone at a cost of \$41.36 (two staff biologist hours @ \$20.80 per hour) to finally complete the survey of all communities. Despite the additional costs of follow up letters and telephone calls, the predicted total will be \$726.20 (Table 13) considerably less than an on-the-ground survey. (See Tables 5 and 6.)

At this point one additional cost to the mail survey--that of the cost of the development of the mail survey form itself--must be discussed. This cost may or may not be considered in the total cost of the mail survey. Data collected for a survey, whether on-the-ground or by mail, that is to be computerized must be recorded in a systematic manner. To do so requires a specifically designed form. The cost of the development of the mail survey form, therefore, should approximate the cost of the development of any form developed for collecting on-the-ground data. For this reason the cost of the development of the mailable survey form was not considered as part of the mail survey cost. For purposes of information, however, approximately 25 hours were spent by the author in the development of the form. In 1984 the author's hourly pay rate was \$17.87. Forty hours at that rate is \$714.80.

A negative cost factor to consider in the mail survey concerns the several lengthy delays by the author in follow-up letters to extract survey data from non-responsive communities. It could be assumed that an immediate follow-up, after the initial response, would have stimulated the

non-responsive communities to respond and negated the need for additional follow-up letters. In essence, if true, the mail survey cost would have been even less expensive. However, this is only assumed and not known to be factual.

Final computed costs put the on-the-ground survey (based on the 1980 survey, i.e, 11-hour day with two communities surveyed) at \$131.17 per survey or (based on the 1982 survey, i.e., an 8-hour day with one community surveyed) at \$198.48 per survey. This is compared to final computed costs of the mail survey which put the cost of each community surveyed at \$5.08 (Table 14).

Table 13: Total Mailing Costs

<u>Mailing</u>	<u>Date</u>	<u>Letters Sent</u>	<u>Letter Cost</u>	<u>Secretarial Cost</u>	<u>Total Cost</u>
Original	8/25/84	122 @ .39¢	\$ 47.58	\$422.00 (40 hrs. @ \$10.55/hr.)	\$469.58
1st Supplemental	1/26/87	65 @ .22¢	14.30	45.56 (4 hrs. @ \$11.39/hr.)	59.86
2nd Supplemental	3/13/87	53 @ .22¢	11.66	39.87 (3.5 hrs. @ \$11.39/hr.)	51.53
Printing Costs For 1,000 forms (estimated)					<u>75.00</u>
Sub-Total Costs					\$655.97
Estimated costs for 21 additional mail surveys (21 test surveys) (122 + 21 = 143)					8.19
Estimated staff time and telephone costs to complete survey					<u>62.04</u>
Total Costs					<u>\$726.20</u>

Table 14: Cost Comparisons (On-the-ground vs. Mail) Per Community

Type	Number of Communities	Total Cost	Cost Per Survey
On-Ground Survey (Based on an 11-hour, 2 community day)	143	\$18,757.31	\$131.17
On-Ground Survey (Based on an 8-hour, 1 Community Day)	143	\$28,382.64	\$198.48
Mail Survey (Based on original, 2 mail follow-ups and a telephone follow-up)	143	\$ 726.20	5.08

CONCLUSIONS

The survey form that was developed is considered successful. It will be a time and certainly a money saver for any natural resource agency wishing to inventory its respective urban fishery. That letter that originally accompanied and explained the survey form is considered only partially successful. More explanation about potential water body construction was needed. This supports the author's contention that the public often misinterprets or does not completely understand what it reads. Additional follow up letters should be accepted as par for dealing with any bureaucracy. Survey forms are being received constantly by governments from researchers and pollsters. Without followup reminders, the survey forms have a tendency to get lost in the shuffle and discarded.

Discussion with various parks and recreation directors of the communities surveyed revealed that formal college training had not prepared them for thinking in terms of recreational fishing--but rather of standard items

such as baseball diamonds, golf courses, picnic areas and swimming pools. Most had no idea that fish-out ponds could be built in areas normally only considered for playground development. This is why they did not think of potential pond construction on vacant public property.

Personal communication with the various community representatives about the survey form itself revealed the form was clear and easy to understand. The logic was straight forward and they had no trouble in following the various steps or blocks of questions, even though some did not understand the reasoning behind the questions.

It is possible that the cost of the mail survey could have been reduced somewhat if follow-up letters had been more timely. The long periods of time between the various follow-up letters, as necessitated by the author's work schedule, perhaps allowed many of the urban communities to put the survey aside and forget it. It also has been suggested by several of the author's colleagues that telephone contacts, instead of the additional follow-up letters, may have prompted quick replies to the survey request and perhaps less expensive in the long run.

The form is estimated to have saved the Michigan DNR Fisheries Division \$20,000-25,000 in wages, travel and meals. Any additional savings, such as more timely follow-ups or through telephone contacts only serve to enhance the mail survey. Also important is the fact that a considerable amount of the author's time (between 38 and 60 percent of the annual total) was freed to be utilized for other projects.

APPENDIX

APPENDIX

PROJECT ANALYSIS

THE USE OF A SURVEY FORM IN THE
DEVELOPMENT OF A STATE
URBAN RECREATIONAL FISHERIES
PROGRAM

By: Ned E. Fogle
Recreational Fisheries Specialist
Fisheries Division
Michigan Department of Natural Resources
1981

The Use of a Survey in the Development of
A State Urban Recreational Fisheries Program

Objective (Problem): Identify the urban recreational fishing needs in each respective area of eleven urban areas in southern Michigan.

Decision Maker: Fisheries Division's recreational specialist.

Goal of Fisheries Division, Michigan Department of Natural Resources:
Develop an urban recreational fishing program for the state to meet the needs and desires of the people.

Possible Alternative Courses of Action and Possible Reactions:

Alternative Option 1: Develop a survey form that will provide the data comparable to the on-ground survey that can be used by the decision maker in determining urban recreational fishery needs for southern Michigan.

Alternative Option 2: On-the-ground survey. Very good but time consuming. The question is whether a questionnaire (Optional) will provide as complete information as would an on-the-ground survey.

Alternative Option 3: Convince people the wilderness concept made it worth to drive north. Rejected because public had already stated they did not intend to do that.

Alternative Option 4: Develop a transportation system, roads and/or transportation system to take people north. Rejected as extremely costly to state and to individuals using system. Reflected costs far outweigh benefits derived. Option rejected.

Alternative Option 5: Do nothing as the department had in the past. Determined to be a poor option because of the unrest by the public from the southern portion of the state. A good possibility that legislative action against the state, in form of fun curtailment or legislative involvement in fisheries management, could result if the warning subtleties were not heeded. This option was rejected.

Alternative Option 6: Plant more fish in southern Michigan to pacify public. Rejected as non-feasible because much of the inner city public would still have long distances to travel to get to the fish. Also non-feasible because state hatchery system did not have capabilities of planting a significant number of fish.

Context of the Problem: By the early 1970's, persons living in the metropolitan area of the state had become increasingly aware of the Michigan Great Lakes fisheries program and wanted the state to increase its emphasis on fishing programs for their immediate areas.

In 1972, the Department of Natural Resources designed a plan of action to develop a Metropolitan Fishing Program. Major goals and objectives were outlined, planning work groups established, and "Planning and Review" and "Citizen Advisory" groups formed. From this organization, metro fishing proposals were developed providing information on feasibility, scope, benefits and costs, budget outlines, and operational plans. Priorities as suggested by the review and citizens committees have been incorporated into the program.

Major programs proposed included a pier and shoreline fishing, recreational fish-out ponds, fish stocking, interpretive services, and private services. However, little could be done because of non-availability of funding to support implementation of such a plan. The perpetuation of the idea of the program, however, was continued through oral presentation of the concept to various communities, groups, and governmental units.

However, in 1977, the department, under mandate by the Governor, developed a proposal for an urban recreational program (Attachments 1-5 to this report). With the Governor's blessing, state funding of such a proposal became a reality.

Fisheries Division, having heard the peoples' wants through its early 1970's contacts, opted to initiate the urban fisheries program in the Detroit metro area. The area chosen was a waterfront strip from the Ohio line to and including the city of Detroit. Projects were developed following an on-the-ground survey of the selected communities by the recreational fisheries specialist. Approval for funding was given by the state legislature and the projects were initiated under the 1978-79 fiscal year funding.

Subsequently, the second phase (year 21 - FY 1979-80) projects were proposed. However, the legislators from other urban areas of the state blocked the program and demanded projects within their own respective legislative areas. The department retreated and advised Fisheries Division to come up with a phase two program that would include a number of projects for other urban areas. There was no time for on-the-ground surveys, so a hastily drafted proposal was constructed based on a few telephone calls. The second year program was never approved for funding because of the state's economic unrest.

It was obvious, however, if a good urban fisheries program were to be developed, the communities to be involved would have to be surveyed to determine their recreational fishing status; the present and potential options as well as needs and wants. Although cost was a factor, time constraints evolve as the major block to determining the recreational fishing possibilities in these urban areas.

Review of the Pertinent Literature and Work Underway: A review of pertinent literature (see Literature Cited) revealed that Michigan continues to be a leader in urban recreational fisheries development. Surveys of urban recreational fishing needs by other states had been or were being done by on-the-ground surveys; non-feasible to Michigan because of time constraints.

Decision: To develop a mail survey that would adequately identify the urban recreational fishing needs in Michigan for the decision maker.

Actors: The actors chosen to provide the input to the survey would be representatives of respective local governmental units; primarily parks and recreation directors.

Decision Variable and Factors Affecting Variables: See Flow Chart, Attachment 6. Variables affecting "decision makers". Decisions housed within circles on chart. Variables are influenced by various groups of public (housed in small six-sided boxes on flow chart) through Fisheries Division.

Proposal: Develop a questionnaire that can be sent to the respective parks and/or recreation director of each community determined to be part of an urban area. The questionnaire, when completed by the communities and returned to Fisheries Division, would provide the decision maker with the needed information. The questionnaire would eliminate the need for an expensive on-the-ground study.

Study Needs: Study 1 - Twelve communities have had an on-the-ground survey by the decision maker. This resulted from the department's need to generate an immediate urban recreation program in response to the Governor's request. Pilot (or test) questionnaires will be sent to each respective community. Comparisons will be made of each respective community's questionnaire to determine how well the questionnaire duplicates the on-the-ground survey. In addition, another 10 urban communities, picked at random, will be sent questionnaires. Each of these communities will be on-the-ground surveyed after they have completed their questionnaires. The questionnaire will then be judged on whether or not it will provide the decision maker with the data that would have been provided by an on-the-ground survey. If no significant changes are required, the questionnaire will be sent to all communities determined to fall within the designated area.

Time Schedule for Test Studies:

1. Initiation Date: January 15, 1982
2. Required Time Period
 - a. Return of questionnaires by March 1, 1982
 - b. On-ground-study - 10 communities - 5 days (to be completed by March 15, 1982)
3. Initial Analysis Complete by April 15, 1982. (Provided no significant changes to be made).

Cooperative Personnel:

Gale Jamesen - Fisheries Division, MDNR
 Dr. Douglas Jester - Fisheries Division, MDNR
 Paul Wei - Data Center, MDNR
 Dr. Dan Talhelm - Resource Development, Michigan State University

Submitted by: Ned E. Fogle
 Recreational Fisheries Specialist
 Michigan Department of Natural Resources

PERTINENT LITERATURE

- Bunin, Nina M., D. Jasperse, S. Cooper, "A Guide to Designing Accessible Outdoor Recreational Facilities", Heritage Cons. And Rec. Serv., U.S. Dept. Int., Lake Central Region, Ann Arbor, Mich., Jan. 80.
- Duttweiler, Michael W., "Urban Sport Fishing - A Review of Literature and Programs". N.Y. Coop. Fish. Res. Unit, Cornell Univ., Mar. 1975.
- Fogle, Ned E., "Asphalt Angling", Mich. Nat. Res., Mich. DNR, Jul.-Aug., 1975.
- Fogle, Ned E., "Fishing for Fun", 4H-Youth Programs, Coop. Ext. Serv., Michigan State Univ., 4-H 1056, Marine Science.
- Fogle, Ned E., "Fishing for Fun - Leader/Teacher Guide", 4H-Youth Programs, Coop. Ext. Serv., Michigan State Univ., 4-H 1057, Marine Science.
- Fogle, Ned E., "Fishing Where the Folks Are", Mich. Dept. Nat. Res., Fish. Div., 1979.
- Fogle, Ned E., "Michigan's Proposal for a Recreational Metro Fishing Program", Mich. Dept. Nat. Res., Fish. Div., Tech. Rept. No. 78-2, Apr. 78.
- Fogle, Ned E., J. Hoffman, "Suggested Modifications for Making Recreational Fishing Facilities Accessible for use by the Physical Handicapped and Aged", Mich. Dept. Nat. Res., Fish. Div., 1978 unpub. memo.
- Groen, Calvin L., "Proceedings of the Ninth Annual Meeting of the Fisheries Administrators Section. Am. Fish. Soc.", May 28-30, 1980. Proceedings compiled by Calvin L. Groen.
- Ikeda, Alexander Yukio, "A Study of the 1970 Urban Fishing Program in the City of St. Louis, Missouri", 1971. A thesis presented to the faculty of the graduate school, Univ. of Mo., Columbia, MO.
- Leedy, D. L., T. M. Franklin, R. M. Maestro, "Planning for Urban Fishing and Waterfront Recreation", U.S. Dept. Int., Fish & Wildlife Serv., OBS-80/35, Jul. 81.
- MacNab, Ian D., R. H. Hester, "Operation Doorstep Angling, Metropolitan Toronto Fishery Project Report", Ministry of Nat. Res., Ontario, Vol. 2 - Mgt. Recommendations 1976.
- Michigan Department of Natural Resources, "Michigan Urban Recreation Program", Lansing, MI, Dec. 79.
- Shupp, Bruce D., "New York State Urban Fishing Program Development", N.Y. State, Dept. of Envir. Cons., Proj. No. F-36-R, Apr. 80.
- Shupp, Bruce D., "Special Report - Urban Fishing: Three Years of BSF&W Involvement Nationally". U.S. Dept. Int. BSF&W (now U.S. Fish & Wildlife Serv.)

Attachment 1.

TO: Department Heads

FROM: Governor William G. Miliken (Signed William G. Milliken)

DATE: June 15, 1977

SUBJECT: Urban Action Group - Urban Policy Coordinator

In my 1977 State of the State address I announced the creation of the Urban Action Group and the Urban Policy Coordinator. These positions are necessary if the state is to take an active role in reversing the tragic decline in our central cities. Fiscal crises, high crime rates, business disinvestment, dilapidated house, and large scale unemployment are among the many problems we need to correct. I am committed to developing a state urban policy addressing these and other issues.

When discussing a comprehensive strategy, four general goals emerge: (1) to provide full employment opportunities for all urban residents; (2) to provide adequate housing in attractive neighborhoods to accommodate the needs of a diverse urban population; (3) to assure safety and security to all urban residents; (4) to put all municipalities in a sound fiscal position.

To achieve the first of these goals the state must endeavor to improve the urban business climate. We must assure the availability of trained labor, land on which to develop, investment financing, adequate levels of services, and an equitable taxation policy. We must expand entrepreneurial opportunities for people within the community, improve local government capacity for economic development planning, and assure equal opportunity employment.

The second of the goals depends on stable, revitalized urban neighborhoods and an expanding supply of housing. Equal housing opportunity is a necessity, as are adequate services to all neighborhoods on an equitable basis.

We must take steps to prevent crime. Certainty of arrest and prosecution is the greatest deterrent we have available. We must provide maximum efficiency within the criminal justice system to protect innocent citizens from the criminal element of society. This is not just an urban problem, but both the material and psychological effects are greatest in the cities.

The final goal can be accomplished by reducing fiscal disparities among communities, by strengthening local tax bases, and by improving fiscal management at the local level. Just as we have reduced the disparities among rich and poor school districts, we must strive to reduce similar disparities among local governments.

Attachment 1. (cont'd.)

Department Heads

-2-

June 15, 1977

To accomplish these goals I have designated an Urban Policy Coordinator and an Urban Action Group. The Policy Coordinator is Richard Helmbrecht, Director of the Department of Commerce. He is responsible for coordinating all the efforts of various state departments as they relate to urban issues. Of special interest will be economic development, an issue which encompasses a wide variety of areas. Central city economic development will not take place until businessmen can be assured that their merchandise, employees, and patrons are safe from crime. Similarly, businessmen will not locate in the downtown if central city tax rates are two or three times higher than those in the suburbs. Housing is an economic development issue since strong neighborhoods are a prerequisite to business location. Job programs, transportation policy, and education all directly interact with urban economic development. Consequently, the Urban Policy Coordinator will approach each of you and ask your assistance in developing policy recommendations. He will rely on you heavily, and I ask your cooperation.

The Urban Action Group consists of: George Weeks, Executive Secretary to the Governor; Pat Babcock, the Governor's Special Counsel for Policy and Legislative Affairs; Roy Williams, the Governor's Executive Assistant for Community Affairs, Keith Molin, Director of the Department of Labor; Jerry Miller, Director of the Department of Management and Budget; Jack Dempsey, Director of the Department of Social Services; and Dick Helmbrecht. This group will be responsible for reviewing the work of the Urban Policy Coordinator before it reaches my desk. At times this staff, too, will ask for your assistance in a variety of ways. They may ask you to analyze programs; or, they may ask for your assistance in planning a policy roundtable. Whatever they request, I expect that you will cooperate fully with them.

Developing a comprehensive effective approach to urban problems is a difficult task. But the federal government has shown a renewed commitment to addressing the problems of our urban centers, and so has state government. I believe if we tap the expertise now within the Michigan state government, if we cooperate in a sincere effort, we will develop an approach which, with the cooperation and contribution of the Legislature, will help revitalize our cities as employment, commercial, and cultural centers.

Attachment 2.

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Interoffice Communication

August 19, 1977

TO: All Division Chiefs

FROM: Howard A. Tanner, Director

SUBJECT: Department Urban Recreation Program

Over the past several years, an urban recreation policy and program for the Department has been considered. The Natural Resources Commission, by resolution, declared that ". . . wherever feasible, existing Department recreation programs shall emphasize meeting urban recreation needs." Governor Milliken, in his 1977 State of the State Address, created an Urban Action group. This group is responsible for developing state programs to assist the urban areas of the state, and the Governor has directed the Department to assist this program.

I am giving this program priority and have designated Deputy Director Scherschligt as the Department's Urban Recreation Coordinator. He will develop a Department urban recreation policy and program, and coordinate all Divisions' efforts related to urban recreation. Due to the short time frame and the desire to integrate selected program proposals into the Department's 1978-79 budget, I am asking for your immediate cooperation. Deputy Director Scherschligt will contact each of you for your assistance in developing and implementing the program.

(Signed)
Howard A. Tanner

cc: Bureau Chiefs
Office of Budget & Federal Aid
J. Robertson, Exec. Assistant

Attachment 3.

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Interoffice Communication

July 1, 1977

TO: John A. Scott, Chief, Fisheries Division
Henry H. Webster, Chief, Forest Management Division
Keith E. Wilson, Chief, Waterways Division
David H. Jenkins, Chief, Wildlife Division

FROM: C. D. Harris, Chief, Bureau of Renewable Resource Management

SUBJECT: Urban Policy Coordinator

Attached is a copy of the memo all department heads received from the Governor announcing his appointment of an Urban Action Group and an Urban Policy Coordinator. Although we have several programs -- including urban fishing, urban forestry, and game area management and development -- which impact on urban programs none of them seem to fall within the purview of the four goals listed in the Governor's memo.

I would suggest that any final documents describing any programs of your division having an urban impact be forwarded by the Director to the Urban Policy Coordinator for his information.

(Signed)
C. D. Harris

CDH:pw

Attachment

cc Scherschligt

Attachment 4.

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Interoffice Communication

refer to 1102.1

July 22, 1977

TO: John A. Scott, Chief, Fisheries Division

FROM: Ned E. Fogle, Great Lakes Specialist

SUBJECT: PRR Write-ups on Recreational Fishing Projects for the
Metro Area of South East Michigan

Comprehensive planning for Metro fishing in southeastern Michigan is difficult because of the uncertainties of obtaining land, utilization of land, community priorities, and instability of recreational staffing. However, I am making progress.

The attached PRR encompasses 26 projects, which I have listed in order of what I consider the most favorable priority. There are a number of other foreseeable projects, which because of circumstances, should not be considered at this time, but which should be pursued as future fishery programs. Good examples of this type project exists with the Township of Grosse Isle. The potential exists for buying land on the Island from the Ford Yacht Club and the B.A.S.F. Wyandotte Chemical Co. for use in development of fishing projects. Also several small Islands which are under the Governmental jurisdiction of Grosse Isle have the potential for fishing development, provided a suitable ferry service could be established to carry fishermen to and from the Island.

My comprehensive plan, as it is drafted, will include all these potential projects as well as the ones now being given priority in the PRR.

I believe one general comment is necessary at this point. Metro fishing is just beginning to be touched upon with the 8 million dollar request and we certainly have our work cut out for us with this type of money need. The communities are very pleased with our interest in their fishery needs and will work whole heartedly with us. I think the Metro fishing flower may just be beginning to bloom.

(Signed)
N. Fogle

NEF:nc
Attachment

MICHIGAN PROGRAM BUDGET EVALUATION SYSTEM

DMB FORM R 10: PROGRAM REVISION REQUEST--CAPITAL OUTLAY PROJECT

Department: Natural Resources

Est. Completion FY 1978-79

PRR Title: Metro Fishing Facilities - Planning and Construction

Project Title:

Type of Project ☐ Plan Only ☐ Plan & Construction ☐ Purchase
 ☐ New Constr. ☐ Remodeling ☐ Major Maint.

Service Capacity: _____	Est. Cost (in \$1,000)		
Est. Cost/Capacity: \$ _____		FY 1977-78	Total
Est. Service Life (Yrs.) _____	Total	\$ 8.0 million	\$ _____
Est. Annual Amortized Cost: \$ _____	Gen.Fund Gen.Purp.	4.0 million	_____
Est. Annual Cost/Capacity: \$ _____	Land & Water Fund	4.0 million	_____
Est. Annual Operation Cost: \$ _____	_____	_____	_____

SUMMARY DESCRIPTION AND JUSTIFICATION:

Shoreline and fish-out pond facilities are needed in communities along the waterfront of southeast Michigan to provide recreational fishing opportunities to shorebound citizens. Communities involved lie within the area bounded on the east by Lake Erie and the Detroit River and on the west by I-75 and I-94.

Funds are requested for planning State projects and also to cooperate with local units of Government in planning projects. Proposals include, but would not be limited to: Fishing piers, fishing bulkheads, shoreline walkways, breakwalls, cantilever platforms, parking lots, fish-out ponds, bank fishing features and related sanitary facilities.

Construction could commence on the following projects as engineering design is complete:

1. Detroit-Riverside Park (Fishing bulkhead, parking, lighting) \$500,000
2. Trenton-Harrison St. Riverfront Park (Cantilever fishing pier already engineered) \$140,000
3. Detroit-Lake Muskoday (dredging, diking, pumping facilities and fish ladder) \$225,000
4. Erie Township-(N. Sterns Road Park, already engineered) \$ 40,000
5. Ecorse-Riverside Park (fishing bulkhead) \$825,000
6. Detroit-Gabriel Richard Park (1500 feet of fishermen walkway and fishing bulkhead) \$937,500
7. Lincoln Park (3 fish-out ponds; 1, 1, and 1½ acres) \$ 31,250
8. Woodhaven-(3 fish-out ponds; 2, ½, and ½ acres) \$ 37,500
9. Trenton-(4 fish-out ponds; 3, 1, 1, and ½ acres) \$ 62,500
10. Detroit-Lakewood East Park (fishing bulkhead; 750 feet) \$412,500
11. Detroit-Alfred Brush Ford Park (Fishing bulkhead; 1640 ft.) \$902,000
12. Detroit-Gabriel Richard Pk. (underwater fish viewing station) \$500,000
13. Detroit-Engle Park (fishing bulkhead; 430 feet) \$268,750
14. Detroit-Memorial Park Extension (fishing bulkhead; 260 ft.) \$162,500
15. Trenton-Meyerellias Park (bulkheading and fishing pier) \$162,000
16. Detroit-Palmer Park (fish-out pond; 2 acres) \$ 25,000
17. Detroit-Stockton Memorial Park (fishing bulkhead; 300 ft.) \$187,500
18. Detroit-Owens Park (fishing bulkhead; 500 feet) \$312,500
19. Detroit-Maheras Park (fishing bulkhead; 1230 feet) \$768,750
20. Erie Township-Erie Game Area (parking and fishing at end of Sterns Road) \$ 87,300

SUMMARY DESCRIPTION AND JUSTIFICATION: (Cont'd.)

21. Gibraltar (fishing pier; 300 feet)	\$ 75,000
22. Grosse Isle-(fishing pier and bulkhead; 500 feet of pier and 500 feet of bulkheading)	\$412,500
23. Southgate (fishing docks; 100 feet)	\$ 23,000
24. River Rouge (fishing bulkheading; 200 feet)	\$125,000
25. Erie Township-Erie Game Area (Parking, dredging, erosion protection and fishing pier as supplement to end of road parking Item No. 20)	\$255,500
26. Wayne County-Elizabeth Park (fishing bulkhead; 500 feet and two floating fishing piers 250 feet each)	\$437,500

Attachment 5

**A PROPOSAL FOR A DEPARTMENT OF NATURAL RESOURCE
URBAN RECREATION PROGRAM**

The final product of this proposal will outline the Department's urban recreation programs, and identify specific possible actions concerning each of the programs. These actions could include:

1. Reaffirmation of existing programs
2. Redirection of existing programs
3. Development of new programs

The development of a Department Urban Recreation Program would facilitate action for urban recreation in Michigan.

INTRODUCTION

During the past several years a Department of Natural Resources (DNR) urban recreation policy and program has been discussed. In 1973, the Natural Resources Commission by resolution adopted an Urban Recreation Policy and declared that " . . .wherever feasible, existing Department recreation programs shall emphasize meeting urban recreation needs". In that same year, the Governor directed state agencies to re-evaluate their role in urban recreation with emphasis toward expanding recreation opportunities in urban areas. Responding to the further decline in central cities, the Governor in his 1977 State of the State address, and by memo dated June 15th, created an Urban Action Group. This group is responsible for developing state policy and assistance for urban areas and input from selected departments of state government is required.

Federal interest and concern for recreation in the urban areas of the nation has resurfaced with the advent of the Carter Administration. Evidence of this renewed interest is the mandating of an Urban Recreation Study. This study conducted under the auspices of the Bureau of Outdoor Recreation is in draft form and hopefully will outline the role of the federal government in urban recreation.

Against this background of renewed interest in urban recreation by the federal and state government, a timely opportunity exists for the DNR to define the state's role and develop specific programs. Our past efforts have focused on generalized policy statements, limited facility development, technical assistance and grants to local governments. These

uncoordinated efforts have put the DNR administration and commission in a position that could be characterized by some as doing little to address urban recreation problems.

This proposal will outline an approach for the development of unified DNR Urban Recreation Program to be implemented by the Director and the Commission. By acceptance of this proposal the Executive office will direct Department staff working with the concerned Divisions to develop a series of specific programs for implementation. Definitions of urban areas, urban recreation, identification of urban recreation programs and providers will guide the development of the Urban Recreation Program.

URBAN AREAS

The Department's Urban Recreation Program will focus on recreation in the urban areas of Michigan. Urban areas consist of the central city, or cities and surrounding closely settled territory (urbanized portion) of Michigan's Standard Metropolitan Statistical Areas (SMSA's). Rural portions of the SMSA's will be excluded. The SMSA's and the corresponding urbanized areas are depicted on the attached maps as the shaded areas. Specific boundaries will be developed for the urbanized portion of the Battle Creek SMSA. In addition, the urbanized boundaries will be adjusted to reflect the most recent population data.

URBAN RECREATION

A definition of urban recreation cannot be concise but must be expressed in general terms. Recreation is a component or concept within the philosophy of leisure. Urban recreation is characterized by its obligation to provide the facilities and programs for diverse interest and discretionary

time recreation opportunities close to home. It is expected to provide something for everyone. From tot-lots to senior citizen and handicapped centers. From competitive indoor and outdoor athletics to picnicking and passive nature experiences. It must accomplish these expectations with facilities on relatively small parcels of intensively developed lands. Many urban facilities require intensive management and programming to spread opportunities. The ability of urban recreation to meet its responsibilities is an important contributing influence in defining the community environment. Therefore, urban recreation carries an additional burden of sustaining the viability of urban life and providing an aesthetically pleasing landscape.

URBAN RECREATION PROVIDERS

Recreation, while related to open space, is not dependent upon it nor does any one agency (public, private, quasi-public) provide the total scope of services. Public recreation in urban areas is provided by the state and local government and infrequently by the federal government. Cities, villages, townships and counties are the local units involved and they provide the bulk of urban recreation. Recreation services of local units are provided under the provisions of state enabling legislation. Local units, through this legislation, have assumed much of the responsibility for urban recreation. Recreation based on natural resources values is the major focus of services and facilities provided by the DNR. However, the state has the pivotal role and responsibility for urban recreation.

URBAN RECREATION ISSUES

In recent years, cities have experienced an unfortunate decline in their ability to meet urban recreation demands without assistance from federal

and state government. Increased reliance upon federal and state sources of revenue plus local budgetary limitations has produced some serious complications in the local recreation system. The following is a brief outline of the major problem areas in urban recreation.

I. Activities

1. Upkeep of existing programs - Budgetary difficulties have caused cutbacks in ongoing programs, reduced facilities operation and slippage in overall maintenance.
2. Opportunities for family participation - Families must travel unreasonable distances to obtain the opportunity for simple outdoor relaxation in a pleasant natural environment. Thus, a viable urban recreation system would have an important impact on energy conservation.
3. Services to special populations - A higher ratio of costs and resources are required to make recreation meaningfully available to some groups of people such as youth, the handicapped and senior citizens.
4. Safety and Security - A prevailing issue that influences urban recreation participation is the concern for public safety.

II. Capital Outlay

1. Land acquisition - The availability of suitable recreation land in cities is obviously limited. Recreation land must compete for space with many other types of land uses, and required further extensive improvements to make it suitable.
2. Open space - It is necessary to replenish open space lost to other uses. Open space can accommodate many forms of activities such as bicycling and nature trails, as well as enhance the urban landscape.

3. Riverfronts - There is a growing recognition that waterfronts and the natural resources of a community can provide expanded recreation opportunities and contribute to the attractiveness of that community.
4. Facilities development - The selection of a facility development is frequently influenced by the criteria of the funding source. Concentration on certain types of facilities occurs at the expense of neglecting other types. The development of a facility in order to take advantage of available funds, often results in incurring unanticipated additional operation costs.

Site improvement and support facilities are a capital cost frequently overlooked. Therefore, facility design must begin to take into account the improvement and upkeep features of intensively used urban facilities.

III. Operation and Maintenance

Operation and maintenance consumes the bulk of recreation expenditures. Existing funds are also frequently expected to cover the operations of new facilities. Local units of government have recently begun to juggle short-term block grants and manpower funds back and forth with local funds to advent budgetary deficiencies. The dilemma can be simply stated: maintenance and operation cost for recreation facilities are increasing at a rate greater than revenue necessitating cut-backs in facility use and recreation opportunities.

IV. Management

The ambiguity of recreation benefits has prevented recreation from receiving a permanent priority status.

1. Reliability of sources of revenue - It is difficult to undertake long-range development projects and programs with the limitations of current revenue sources. This shortcoming tends to make local units undertake expedient short-term projects and programs. Only a long-term sustained revenue source can have any significant impact on urban recreation needs.
2. Measurable services - Recreation providers must develop the management tools to translate recreation services into social benefits.

The DNR and Urban Recreation

As one of the providers of urban recreation, the DNR currently lacks a cohesive urban recreation program which incorporates all of the various Divisional recreation related activities.

To various degrees many of the Divisions of the DNR impact the urban recreation system. Most of these DNR activities can be grouped into four categories: (1) Facilities and Programs; (2) Technical Services; (3) Funding Sources; and (4) Regulatory Functions. Some of the Department's operations within these four categories are:

I. Facilities and Programs:

Wildlife programs - pheasant put and take

Metro fishing program

Urban parks

Metropolitan trails

Marinas

Boating launching and public access sites

Natural rivers program

Youth safety programs - hunting, marine, snowmobile

Natural areas program

II. Technical Services:

Urban forestry program

Information and education services

Recreation facility and program design

Recreation research and planning

III. Funding Sources:

Land and Water Conservation Fund

Michigan Land Trust Fund

Youth Conservation Corps

Coastal Zone Management

Work Opportunity Resource Corps

Fittman-Robertson

Dingell-Johnson

IV. Regulatory Functions:

Submerged lands - fill and dredge

Zoning and land use

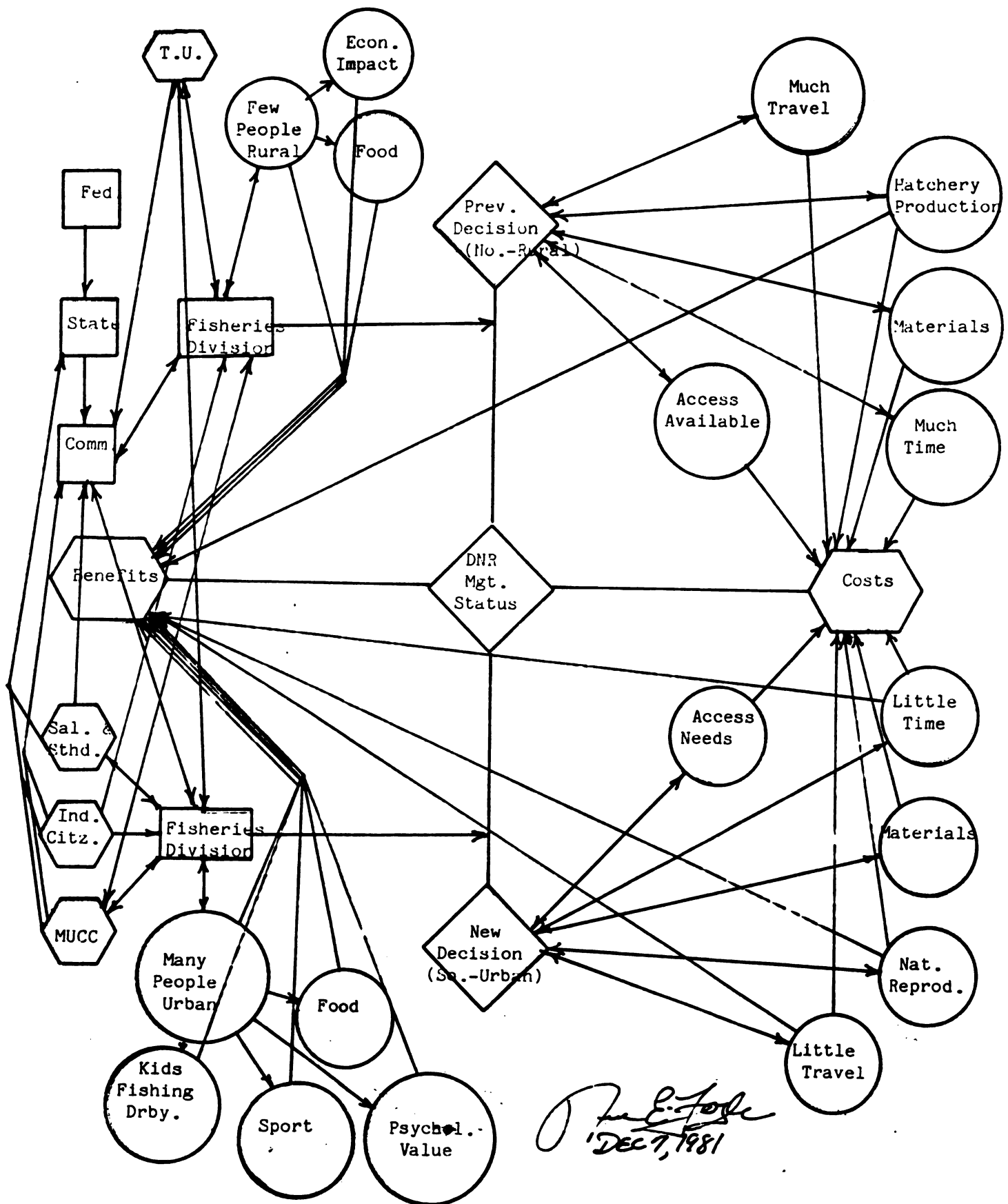
Dams and impoundments

Land fills

Air and water quality

Attachment 6.

STRATEGY OF THE DEVELOPMENT OF AN URBAN FISHERIES



LIST OF REFERENCES

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- Bevins, M.I., R. S. Bond, T. J. Corcoran, K. D. McIntosh, and R. J. McNeil. 1968. Characteristics of Hunters and Fishermen in Six Eastern states, Univ. of Vermont, Agric. Exp. Sta., Bull. 656; 76 pp.
- McBride, Norman. 1978. The Capitol District Urban Fishing Program, Bureau of Fisheries, Div. Fish & Wildlife, N.Y. State Dept. of Environ. Cons.
- Buterbaugh, Glaen - U.S. Fish and Wildlife Service, Washington, D.C. stationed in the Minneapolis FWS Regional Office during the instigation of this program.
- Fogle, Ned E. 1975. Asphalt Angling, Michigan Natural Resources, 4833-5140, Jul/Aug.
- Fogle, Ned E. 1983. Michigan and the Urban Angler, Urban Fishing Proceedings, Fish., Mgmt. Sect. & Fish. Admin. Sect., Am. Fish. Soc.
- Fogle, Ned E. 1978. Michigan's Urban Fishing Program, Fish. Div. Tech. Report #78-2.
- Fogle, N.E. 1977. The Relationship of Water Abundance and Quality to Development of Metro Recreational Fishing Programs, MDNR, unpublished.
- Ikeda, Alexander Yukio. 1971. A Study of the 1970 Urban Fishing Program in The City of St. Louis, Missouri, a Thesis presented to the Faculty of the Graduate School, Univ. of Missouri, Columbia.
- Leach, Paul J. and V. James Rains, Jr. 1981. Something's Fishy in the Nation's Capitol. Office of Resource Conservation and Mangt., Nat. Mar. Fish. Serv., 3300 White Have St., Washington, D.C. 20235.
- Leedy, D. L., Tim Franklin and R. M. Maestro. 1981. Planning for Urban Fishing and Waterfront Recreation. Urban Wildlife Research Center, Biological Services Program, U.S.F.W.S., FWS/OBS-80/35.
- Lehman, Dick. 1983. Metro Fishing. Michigan Natural Resources Magazine, Mar/Apr.
- Mich. DNR. 1979 Urban Recreation Program. Rec. Serv. Div.
- Outdoor Recreation Resources Review Commission Study Report No. 21, 1962.
- Shupp, Bruce D. 1972. Special Report, Urban Fishing: Three Years of BSF&W Involvement Nationally. U.S. Dept. of Int., BSF&W, Div. of Fish. Serv., Princeton, Indiana.
- Summerfeldt, Robert - Iowa State U., Ames, IA. Formerly with the U.S.F.W.S. and in charge of the Oklahoma project.
- Tody, Wayne H. and C. D. Harris. 1965 and 1966. Trout stocking in Southern Michigan Ponds. unpublished.

Westerman, Fred, Chief of Fisheries. 1955. Setting aside certain waters for juvenile fishing. MDNR Fisheries Memorandum. unpublished.

Williams, Julie. 1982. Wake up Urban America Happy Days Are Here Again!. Fishing Tackle Trade News, Jul/Aug.

USDI Heritage Conservation and Recreation Service. Urban Waterfront Revitalization: The Role of Recreation and Heritage.", Vol. 1, Key Factors, Needs and Goals, undated, 31 pp.

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