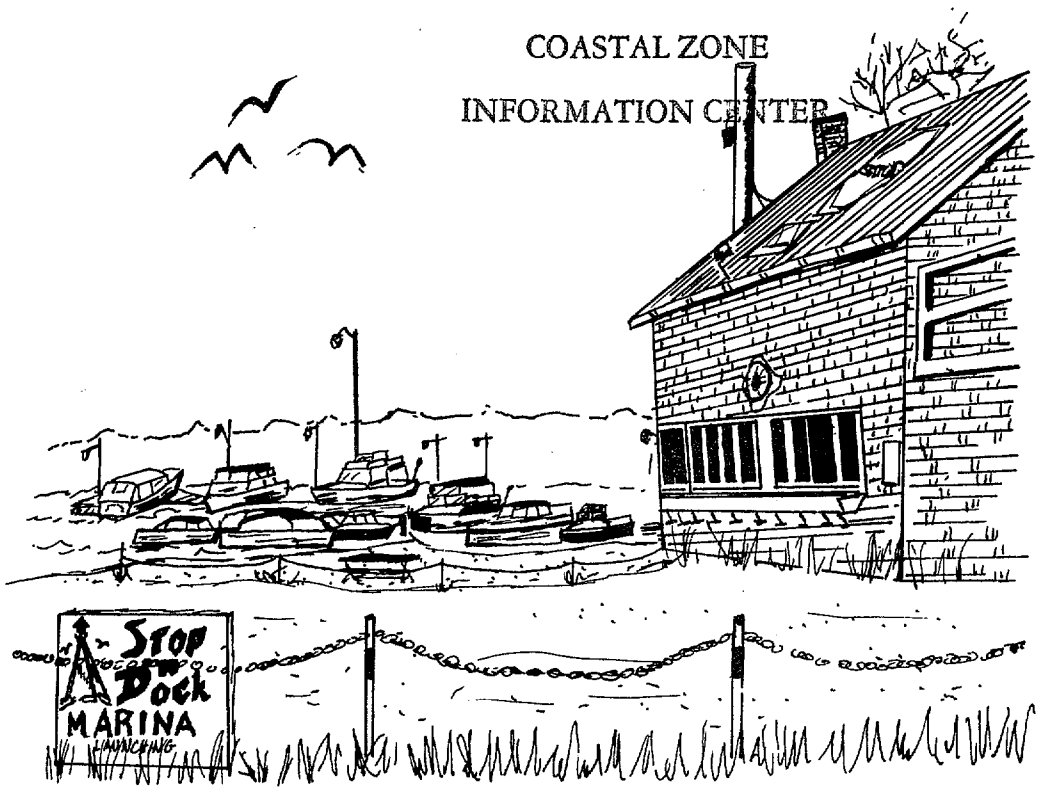
COASTAL ZONE MANAGEMENT PROGRAM

LAKE MICHIGAN SPORT FISHING SUPPORT SERVICES SITES AND FACILITIES STUDY

CITY OF TWO RIVERS, WISCONSIN



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PREPARED BY: GARY L. PETERSON AND ASSOCIATES

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KIWANIS
FISH DERBY
HEADQUARTERS
LAKE MICHIGAN
FISHING MAPS
SOLD HERE
80 HP MERCURY
FISH DERBY
JULY 25-27
GRAND PRIZE
LAKER
1 17# 4½ oz Bill Bero T.P.
2 15# 8 oz Milt Allie Two Rivers
3 15# 4 oz Bill Bero T.P.
RAINBOW
12 lb 14 oz 37"
LARRY PAGE

LAKE MICHIGAN SPORT FISHING SUPPORT SERVICES

SITES AND FACILITIES

INTRODUCTION

The popularity of sport fishing has dramatically increased in Two Rivers in the past several years, bringing significant changes to the City. As mentioned in the Fish Entrails Disposal Study, the greatest impact has occurred since 1970. These changes were not necessarily sought by the City government, private interests, or the majority of Two Rivers residents.

Private commercial interests have responded more quickly to the increased popularity of sport fishing than have government or nonprofit organizations. For example, the marina business has prospered, with new marinas opening for business. The sport fishing charter business has been born and continues to sustain itself. Also, the number of private piers for in-water boat storage has continued to grow.

The City has participated in the growth of the activity in several ways. First, it created a land use zone that accommodates the marina business, and has continued in the process by making changes in the zone as requested by private industry. Second, the City improved its two boat launching areas in the 1970s and has recently purchased land to expand the one at 27th Street. Finally, one year ago the City established four public fish cleaning stations and began collecting fish entrails.

For those who had not yet grasped the importance of the sport fishing industry to Two Rivers, the influx of thousands of fishermen to the first annual Fish Derby in 1979 brought its popularity into clear view. The 1980 Fish Derby demonstrated the continued interest and popularity of the event and sport fishing. In 1980, 2,070 fish were caught weighing a total of 10.5 tons. It is amazing that a catch with hook and line over a three day period can be measured in tons.

This study looks at the needs and services of both the City and private industry in relation to sport fishing. It also makes recommendations on how future services should be expanded to better accomodate both resident and non-resident fishermen and boaters. This includes recommendations on the expansion of services, and plans with cost estimates for the construction of facilities. The study also puts forth other areas in which private and public services can be expanded.

In addition, this study examines some of the questions surrounding sport fishing in Two Rivers. First, it is not known what role the City should take in supporting and encouraging this activity. Second, it is unclear whether sport fishing is an activity of passing interest in the

City, and therefore, to what extent the City should become involved in providing these services. If there is going to be declining interest, there is also the question as to whether the City should simply withdraw from the activity, or whether it should counteract by providing better services to attract those fishermen who are interested in Lake Michigan sport fishing.

PROBLEM AREAS

There is a need for a larger land area to adequately accommodate sport fishing in Two Rivers. This is especially apparent in the summer when both the private and public facilities are at or beyond capacity. This is particularly a problem on weekends when the greatest number of people have an opportunity to go fishing. The need for more room within the private sector has been demonstrated by the continued expansion of in-water boat storage piers on private property, the additional land rented by Stop and Dock Marina, and the additional indoor storage space rented by Twin City Marina. There has also been a demand for more services from the private sector. The three largest marinas have expanded their services this year by providing motorhome camping areas on their sites.

The need for expanded sport fishing facilities by the public sector has been illustrated by the overcrowding in the 27th Street Launch Ramp area, and the fact that the City's marina parking area reaches capacity in the early morning. In response to the demand for more services, the City has installed fish cleaning stations for the collection of fish entrails, and has assisted with the large crowds which attend the fish derbies.

Problems remain as to the level of involvement that the public sector should take in the sport fishing industry. Further questions relate to whether the fish population will continue to grow, and whether the interest in sport fishing will continue to increase as it did in the 1970s. Questions arise as to the permanence of any activity which becomes very popular in a relatively short time. The City must then decide whether it should provide facilities which may not be needed in the future.

SPORT FISHING OBJECTIVES

Taking into account both the needs and potential of Lake Michigan sport fishing in Two Rivers, specific objectives have been set so that the City may gain the greatest benefit from this activity. Designing the sport fishing support facilities and site plans has been oriented toward meeting these objectives, which are as follows:

(1) Make the City of Two Rivers the strongest sport fishing center on the western shoreline of Lake Michigan for lake boat fishing and lakeshore fishing, but not necessarily for snagging; (With the City's location, harbor and existing services, it is its role to be the leading sport fishing area, as it is the commercial fishing leader.)

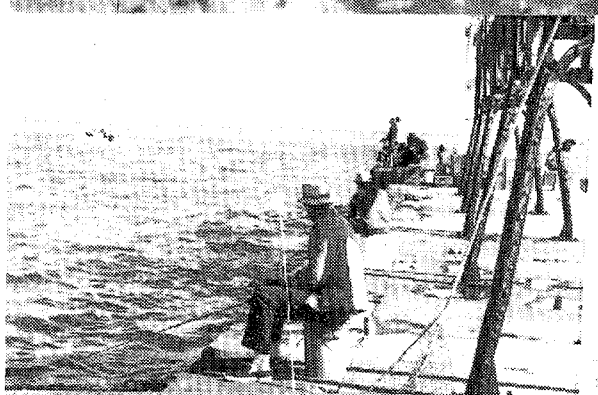
(2) Provide a balanced mix of public and private services and facilities; (Fishermen have demanded services of both sectors, and it is unreasonable to expect that either one by itself can provide the full range required by Wisconsin fishermen.)

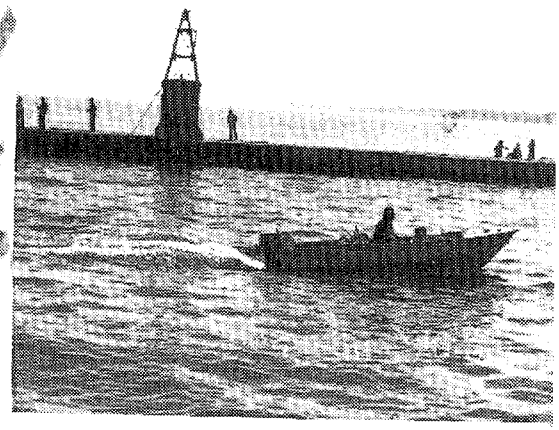
(3) Control the sport fishing activity so that it does not become a visual pollution or a social detriment to the City of Two Rivers. (The City certainly does not want to become so involved in this single activity that the majority of citizens feel that it has become a detriment to their community. The City should be able to look to its sport fishing activity with pride, and see it as a benefit to both the recreational industries involved and the City as a whole.)

FINDINGS AND NEEDS

In order to determine the present needs and trends in sport fishing, data was obtained from the Department of Natural Resources (DNR) and analyzed by the Consultant. Interviews were held with people who make their living in the sport fishing industry, both in Two Rivers and at the district and state levels. The DNR reports that there were 12 charter boats, 157 power boats and 5 sail boats moored in Two Rivers this year. This is a significant number for a city of this size. A 1979 DNR Performance Report contains the most current data with comparable statistics on fishing trips, number of fish caught, type of fish, etcetera, in Two Rivers. The report comments on the reduction in number of fish caught in 1978 as follows:

> "It's been pointed out in many fishery reports that angler success often depends on many items <u>besides</u> the fish resource available to the fishermen. This is exemplified in classic fashion by the 1978 fishery on Lake Michigan. The total catch of trout and salmon was only 78% of the average of the prior 4 years, despite what should be the largest number of fish ever available in the lake. The major reason for this lower catch is that the total <u>number of fishing trips was only 70.7%</u> of the average for the same 4 year period. That's a nearly 1/3 drop in fishing pressure. Is the novelty wearing off?"





1980 FISH DERBY WINNER

"Many factors besides the fewer fishing trips undoubtably enter into the harvest figures. Some of these include the following, not necessarily in order of importance in 1978:

(1) "Targeting" on chinook, (by area, time of day, and type of bait used).

(2) Very cold water during most of the summer. This strongly affected the pier fishery, (adversely).

(3) Alewife abundance, and size of the individual alewife. (Very large numbers of small alewife in 1978)

(4) Stocking numbers in prior years. 1978 should have been "super" fishing if predictions were based only on number stocked in prior years.

(5) Concern for eating fish due to PCB contamination. This was certainly of some concern, especially to Sheboygan area fishermen due to a specific PCB problem in that area.

(6) A tendency to concentrate fishing efforts only during the most productive period. The experienced fishermen have great confidence that they can "fill the freezer" very easily by fishing only in July and August.

(7) Unusually high water conditions in tributary streams during the spring rainbow spawning run.

(8) October 1 vs. September 15 snagging season opened in 1978.

(9) "New" fishery in Oconto River in the fall of 1978, due to improved water quality.

(10) An inexperienced creel clerk at Milwaukee for a large part of the census season is suspected of missing quite a few fish."

In addition, due to the methodology of the DNR Report, the findings of the report were qualified as follows:

"For the tenth consecutive year a creel census was conducted on Lake Michigan and its tributaries. The personal interview type creel census is a recognized method of providing biological data as well as estimates of the fish harvest. Charter boats and individually moored craft are not specifically encountered in the census; therefore, the catch estimates reflect only the transient sector of the fishery. In addition, trout and salmon which are caught outside the seasonal creel census

period are not included in the catch data. Owners of "permanently" moored boats are probably the best and most active fishermen. Since they are rarely censused, and their numbers have increased over the years, it is obvious that the census misses many fish."

Despite the unusually low number of fishing trips taken in 1978 and the methodological shortcomings, the 34,400 fishermen days reported in Two Rivers in 1978 is impressive. This number is even more significant considering that it is seriously underestimated and that the actual involvement was much greater.

A. Areawide Fishing Data

Boats. Statistics in Table 1 from the DNR indicate an increase of approximately 1,200 registered boats in Manitowoc County since 1970. There has been an approximate increase of 92,000 registered boats for the State of Wisconsin over that same period. Manitowoc County represents 1.2 percent of the total State increase. Annual fluctuations in the number of registered boats shown on Table 1 are due to differences in the number of licenses which expire yearly. In addition, most of the in-water stored boats and many of the launched boats are not registered in Manitowoc County.

Table 1

Boat Registration*

Year	Manitowoc Co.	Wisconsin
1970	4,090	312,281
1971	4,488	341,376
1972	4,213	315,685
1973	4,645	354,155
1974	4,979	383,181
1975	4,643	354,006
1976	4,933	379,333
1977	5,249	408,440
1978	4,931	384,201
1979	5,231	404,185

*Annual fluctuations due to the difference in the number of licenses which expire each year. Currently on a 3-year registration schedule; in the process of switching to a 2-year schedule.

Source: State of Wisconsin, Department of Natural Resources, June 1980.

Fishermen. As may be expected, the total number of licensed fishermen in Manitowoc County was higher in 1978 than it was in 1970. In this period, there was a steady increase in the number of licenses issued to out-of-state fishermen. The types of non-resident licenses were expanded in 1975 to include three new categories, which are shown in Table 2.

Table 2

Fishing Licenses

Manitowoc County

Year	Individual	Husband & Wife	Total Licenses
1970	6,544	1,765	10,074
1975	7,845	1,902	11,649
1976	7,415	1,647	10,709
1977	7,258	1,699	10,656
1978	7,028	1,530	10,088

State of Wisconsin

Year	Individual	Husband & Wife	Total Licenses
1970	420,196	79,360	578,916
1975	466,955	115,863	698,681
1976	457,157	112,925	683,007
1977	457,403	111,189	679,781
1978	467,070	109,712	686,494

Out-of-State

Year	Annual	Daily	15-Day (Hus.-Wife)	Annual (Family)	15-Day (Ind.)	4-Day (Ind.)
1970	333,166	4,692	57,157	*	*	*
1975	109,974	9,562	*	61,161	75,164	127,504
1976	109,179	10,188	*	65,012	73,612	138,415
1977	108,752	11,422	*	66,840	72,857	144,196
1978	109,081	13,916	*	67,782	74,748	151,251
				67,78		

*This type of license not available at that time.

Source: State of Wisconsin, Department of Natural Resources, July, 1980.

COHO
1 Coho 14 Lb 4 oz 33 in Paul Vandeberg Little Chute Wi
2 c 12th 5 oz Tom Rosenberger Brainerd Minn.
3 c 12th 1 oz Rod Henrickson T.R
4
5
KIWANIS
FISH DERBY
REGISTRA
HEADQUARTERS
LAKE MICHIGAN
FISHING MAPS
SOLD HERE
RAFFLE
TICKETS
SOLD HERE
50¢ 3 for 1.00
2 - $5000 TAGGED FISH
SPONSORED BY
CITIZENS LAKESHORE BANK
1980 TWO RIVERS KIWANIS CLUB FISH DERBY
RAINBOW
BROWN
LAKER
CHINOOK
16 lb 1 oz 30½ J.R. BERGSTEDT
Larry Page Two Rivers

Following the peak year of 1975, the number of fishing licenses issued in 1978 represented a slight decline in both Manitowoc County and the State of Wisconsin. Some of this in-state decline may be attributed to the increasing number of residents purchasing sport licenses, good for both fishing and hunting, as shown in Table 3.

Table 3

Sport Licenses

Year	Manitowoc County	Wisconsin
1970	4,660	266,489
1977	4,598	272,618
1978	4,798	279,837

Source: State of Wisconsin, Department of Natural Resources, June, 1980.

B. Fishing Data for the City of Two Rivers

The DNR Creel Census collects considerable data for the City of Two Rivers. Some of this data is shown on Tables 4 through 7. Since the census is taken at varying times of the year, a comparison of one year to the next is difficult. However, an examination of the data is interesting, points out some general trends in Two Rivers, and the figures are impressive.

Table 4 shows the catch and effort required for various types of fishing in Two Rivers during the 1970s. Fishing from piers and breakwaters has been declining since its peak popularity and catch in 1974, with a marked decrease in 1979. Since 1977, trolling has also declined significantly. The data seems to indicate that the popularity of trolling depends on whether the fish are biting. Stream fishing seems to have reached a peak in 1977. However, it is too early to determine whether this will be a trend, since the total number of fishing trips and fish caught in 1978 and 79 was impressive despite a decline.

Table 4 suggests that the rapidly increasing popularity of sport fishing has passed in Two Rivers. However, this does not correspond with the prospering business of the marinas and the expansion of services being provided. It is also inconsistent with the number of licensed

Table 4

Fishing Catch and Effort in Two Rivers

Year	Total Trips[1*]	Hours per Trip	Trips per Fish	Total Fish	Hours per Fish	Total Hours
			Trolling Fishery			
1971	18,846	4.7	2.1	9,039	9.8	88,578
1972	11,137	4.8	1.7	6,468	8.3	53,457
1973	4,980	4.8	1.6	3,026	7.9	23,905
1974	8,592	4.88	1.7	5,082	8.25	41,930
1975	13,017	5.2	1.6	8,126	8.3	67,690
1976	6,701	5.35	3.8	1,752	20.46	35,852
1977	20,960	4.93	.8	25,020	4.13	103,331
1978	7,834	8.73	1.3	6,058	11.29	68,392
1979	7,182	5.21	1.3	5,415	6.91	37,421
Total[3]	92,067	5.65	1.3	69,986	7.44	520,556
			Pier/Breakwater Fishery			
1971	9,658	2.5	21.9	441	34.5	23,968
1972	27,972	1.97	6.9	4,078	13.5	55,104
1973	29,827	1.9	3.3	9,141	6.2	5,672
1974	45,310	2.48	2.8	16,053	7.0	112,369
1975	22,459	2.37	6.4	3,516	15.14	53,228
1976	12,076	3.12	4.7	2,574	14.64	37,678
1977	10,705	2.71	1.8	5,957	4.87	29,010
1978	11,865	2.7	2.2	5,476	5.85	32,035
1979	6,433	2.72	5.3	1,207	14.5	17,497
Total[3]	176,306	2.22	3.6	48,443	8.06	390,529
			Stream Fishery[2]			
1971-E	2,702	2.0	4.4	661	8.2	5,404
1971-W	3,439	1.6	4.1	462	11.9	5,502
1972-E	1,973	1.32	1.9	1,062	2.5	2,604
1973-E	3,328	2.2	4.6	725	10.1	7,322
1974-B	8,592	4.88	1.7	5,082	8.25	41,930
1975-E	3,475	1.64	4.4	781	7.3	5,698
1975-W	7,025	1.91	4.1	1,699	7.9	13,419
1976-E	4,548	5.64	4.4	2,456	24.72	24,062
1976-W	5,815	5.29	4.1	1,117	21.55	25,123
1977-E	8,423	2.11	1.6	5,385	3.30	17,772
1977-W	7,682	2.69	1.6	4,933	4.18	20,665
1978-E	3,832	3.35	6.4	598	21.47	12,839
1978-W	9,870	1.84	3.7	2,679	6.78	18,161
1979-E	3,168	2.33	2.5	1,262	5.85	7,381
1979-W	6,826	1.85	2.8	2,392	5.28	12,628
Total[3]	80,698	2.73	2.6	31,306	7.04	220,510

Source: Department of Natural Resources, Creel Census, 1971-1979.

*Notes for Table 4 are given on the following page.

fishermen in Manitowoc County and the balance of the state, and the out-of-state fishermen. This may be due to the method in which data is collected for the creel census, as mentioned previously. A number of factors influence the catch each year, plus the census does not adequately reflect the habits of the more skilled fishermen with their own crafts, who constitute a growing portion of the fishing population. An example of this was seen at the 1980 Fish Derby when skilled fishermen, using their own crafts, caught and registered 2,070 fish in three days, with each fish averaging over 10 pounds.

When comparing the data for Two Rivers on Table 4 with that of Table 5 on Lake Michigan as a whole, it is apparent that trends were very similar for the entire western portion of the lake. However, for trolling, stream and pier/breakwater fishing, more fish were caught per fishing hour in Two Rivers than on the balance of the lake. This implies that Two Rivers is the place to fish for good luck and a good catch.

Table 6 gives the catch by species in Two Rivers for each type of fishing. Lake Trout, Chinook and Coho Salmon are the most common fish caught when trolling. Lakers are by far the most abundant, with over three times as many being caught as any other fish. As for pier/breakwater fishing, Coho, Chinook and Rainbow Trout dominate the catch. Chinook are the principal, and practically only, fish caught in the rivers. Altogether, Two Rivers is an ideal spot for the experience of catching Lakers, Chinook and Coho Salmon.

The catch of different species in the Two Rivers-Port Washington area is compared with that of the balance of western Lake Michigan in Table 7. The percent of total lake catch which comes from the Two Rivers area declined slightly from 1975 to 1978, but it still accounts for a sizeable portion of the total fish caught. This data is significant in that it shows that Two Rivers has retained its position as a sport fishing center, despite the lower catches in recent years. This is especially true for Coho Salmon, Chinooks and Lake Trout which are the most

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Notes for Table 4:

[1]One trip is counted for each time each fisherman goes out.

[2]The data given is designated as being from either East Twin River (E), West Twin River (W) or the total of both rivers (B).

[3]Note that these totals reflect information collected by surveys which were not consistently taken each year nor do they reflect a total or representative sample. Actual catch, hours, etc, were greater than these figures would indicate.

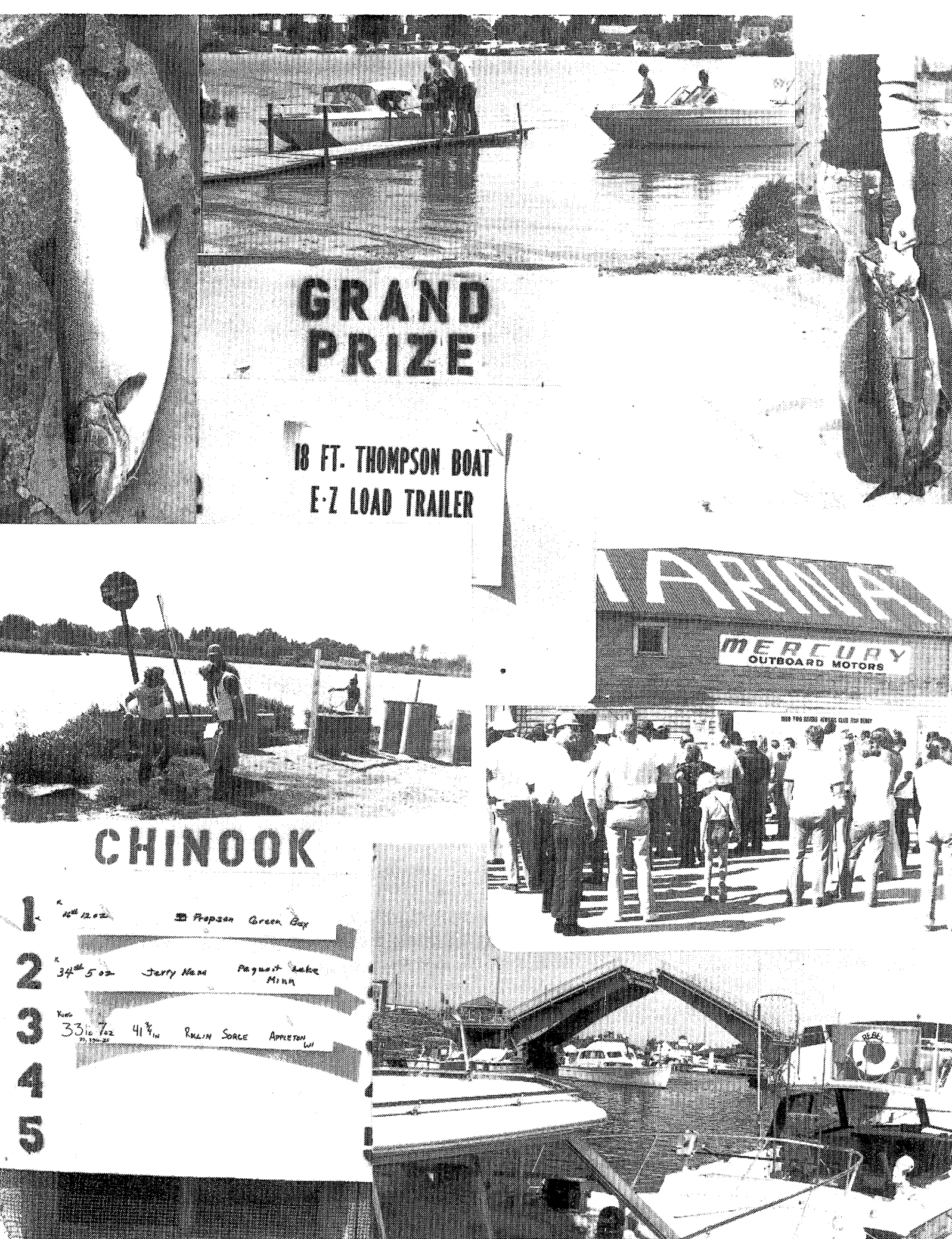

GRAND PRIZE
18 FT. THOMPSON BOAT
E-Z LOAD TRAILER
MERCURY
OUTBOARD MOTORS
CHINOOK
1
2
3
4
5
Propson Green Bay
Jerry Nam
Paquoit Lake Minn
Rollin Sorce
Appleton WI

Table 5

Lake Michigan Fishing Catch and Effort for the State of Wisconsin

	Year	Trips	Hrs/ Trip	Trips/ Fish	Fish	Hrs/ Fish	Hours	Sites
Streams	1969	15,440	2.4	2.3	6,603	5.5	36,604	13
	1970	26,194	2.2	5.6	4,493	12.4	58,248	19
	1971	42,126	2.4	3.6	11,622	8.6	99,508	16
	1972	47,911	2.1	4.1	11,590	8.5	98,406	12
	1973	120,202	1.7	5.0	24,157	8.3	201,426	16
	1974	123,183	2.7	2.0	60,952	5.4	331,207	16
	1975	246,533	2.7	2.6	95,217	7.0	667,087	24
	1976	172,212	3.1	4.5	38,122	13.8	526,671	22
	1977	164,859	2.2	2.2	75,345	4.8	362,034	18
	1978	95,259	2.8	3.2	36,626	9.1	303,045	21
Pier/Breakwater	1969	55,804	2.1	4.3	12,966	9.0	117,651	8
	1970	86,315	2.0	6.1	14,069	12.2	171,262	13
	1971	132,305	1.9	14.2	9,327	27.0	252,764	15
	1972	250,340	2.0	9.1	27,634	17.8	490,676	14
	1973	223,344	2.0	6.5	34,349	12.8	439,838	13
	1974	343,737	2.3	4.0	86,394	9.1	782,378	14
	1975	285,560	2.1	8.0	35,707	17.1	610,400	14
	1976	181,125	2.9	4.5	39,917	13.1	522,703	16
	1977	370,978	2.4	3.0	121,349	7.3	886,800	16
	1978	198,404	2.8	4.4	44,728	12.3	533,062	12
Trolling	1969	33,070	3.5	2.6	12,919	9.1	115,235	10
	1970	75,283	4.1	2.4	30,738	10.0	308,833	23
	1971	206,556	4.4	2.4	86,086	10.6	911,352	23
	1972	208,997	4.8	2.0	102,641	9.7	995,200	23
	1973	268,225	4.9	2.0	133,603	9.8	1,310,126	28
	1974	380,571	4.6	1.9	203,870	8.6	1,748,433	22
	1975	378,218	4.8	1.9	194,747	9.3	1,811,460	23
	1976	261,349	5.6	3.3	78,345	18.7	1,462,846	25
	1977	413,693	5.1	1.3	325,576	6.5	2,126,728	25
	1978	307,913	5.5	1.6	196,585	8.9	1,577,552	23
Shore	1969	No data for this year.						
	1970	55,069	2.4	3.3	16,564	8.1	134,557	18
	1971	37,389	2.6	4.4	8,518	11.6	98,937	12
	1972	77,092	2.9	3.9	19,659	11.4	224,308	18
	1973	57,205	2.5	3.8	15,033	9.5	142,454	18
	1974	114,775	2.8	1.7	65,725	4.8	316,311	12
	1975	184,624	2.8	2.9	64,099	8.1	522,014	21
	1976	156,107	2.6	3.4	45,403	8.9	405,364	22
	1977	222,063	2.3	2.2	99,684	5.1	512,855	22
	1978	105,713	2.7	2.9	41,863	7.9	285,585	20
Combined	1969	104,314	2.6	3.2	32,488	8.3	269,490	31
	1970	242,861	2.8	3.7	66,064	10.2	672,900	73
	1971	418,826	3.3	3.6	115,553	11.8	1,362,561	66
	1972	584,340	3.1	3.6	161,524	11.2	1,808,590	67
	1973	668,976	3.1	3.2	207,142	10.1	2,093,844	75
	1974	962,266	3.3	2.3	416,941	7.6	3,178,329	64
	1975	1,094,935	3.3	2.8	389,770	9.3	3,610,961	82
	1976	770,793	3.8	3.8	201,787	14.5	2,917,584	85
	1977	1,171,593	3.3	1.9	621,954	6.3	3,888,417	81
	1978	707,289	4.0	2.3	319,802	9.4	2,699,244	76

Source: Department of Natural Resources, 1979

Table 6

Catch by Species in Two Rivers

River	Year	Brook	Brown	Rainbow	Coho	Chinook	Lake
			Stream Fishery				
E.Twin	1971	22	44	260	331	4	--
W.Twin	1971	15	30	183	231	3	--
E.Twin	1972	--	30	152	698	61	121
E.Twin	1973	187	23	23	281	211	--
Both	1974	--	35	174	--	1,149	--
E.Twin	1975	--	--	167	502	112	--
W.Twin	1975	142	217	289	217	834	--
E.Twin	1976	--	6	22	19	717	--
W.Twin	1976	4	39	59	46	2,609	15
E.Twin	1977	32	253	158	285	4,656	--
W.Twin	1977	51	68	787	513	3,524	--
E.Twin	1978	24	42	90	--	442	--
W.Twin	1978	2,009	80	80	--	510	--
E.Twin	1979	72	--	180	--	1,010	--
W.Twin	1979	720	77	360	--	1,235	--
	Total	3,278	944	2,984	3,123	17,077	136
			Pier/Breakwater Fishery				
	1971	--	386	--	55	--	--
	1972	247	2,604	147	933	147	--
	1973	236	660	707	4,005	3,533	--
	1974	818	387	3,314	10,200	1,291	--
	1975	109	218	1,153	236	1,568	232
	1976	21	138	638	457	1,319	--
	1977	392	633	1,527	1,788	1,547	70
	1978	1,205	1,424	1,150	1,424	273	--
	1979	293	146	366	329	55	--
	Total	3,321	6,596	9,002	19,427	9,733	302
			Trolling Fishery				
	1971	--	27	832	1,545	597	6,038
	1972	19	154	174	989	232	1,203
	1973	--	130	49	414	536	2,184
	1974	--	58	302	2,188	288	2,246
	1975	--	49	1,381	414	536	2,184
	1976	--	11	136	127	236	1,241
	1977	--	94	1,837	4,589	2,855	15,595
	1978	--	121	545	1,030	1,272	3,090
	1979	--	52	295	729	1,475	2,864
	Total	19	877	5,601	12,021	8,027	36,646

Source: Department of Natural Resources, Creel Census, 1971-1979

Table 7

Comparison of Two Rivers-Port Washington Catch to Total Western Lake Michigan Catch

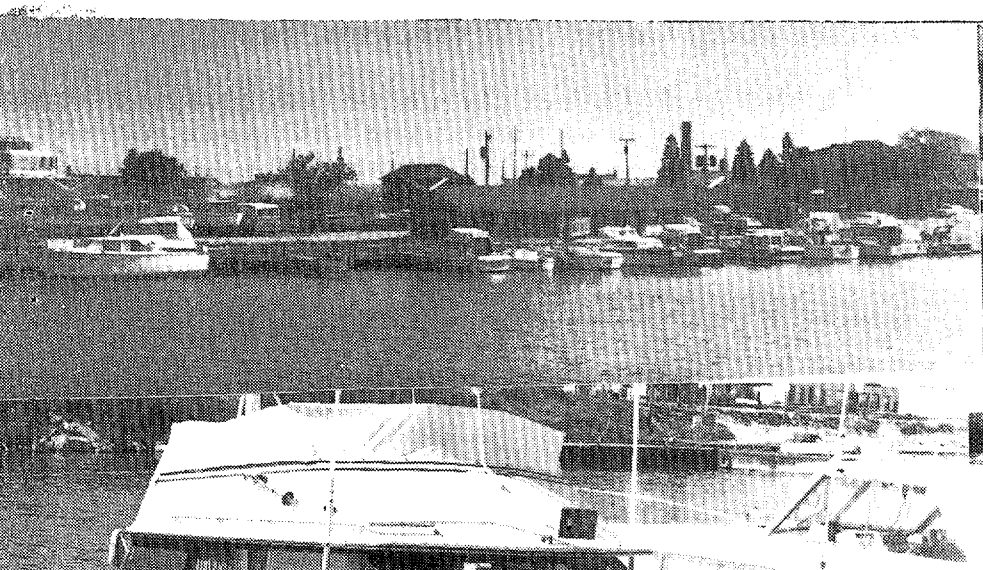
Type of Fish	1975 TR-PW Catch	Percent of Total W.L.Mich. Catch	1978 TR-PW Catch	Percent of Total W.L.Mich. Catch	Percent Change TR-PW Catch	Change in TR-PW Position
Brook	2,683	49.8	7,883	77	193.8	+27.2
Brown	28,643	41.0	13,392	18	-53.2	-23.0
Rainbow	31,645	52.1	13,089	29	-64.7	-23.1
Coho	34,672	39.0	22,045	34	-36.4	- 5.0
Chinook	46,178	51.7	44,454	46	- 3.7	- 5.7
Lake	19,133	25.3	9,266	33	-51.5	+ 7.7
Total	162,954	41.8	110,129	34.4	-32.4	- 7.4

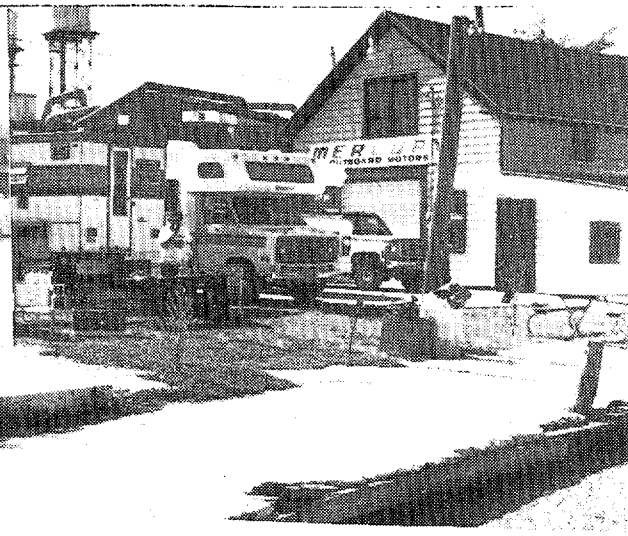
Source: State of Wisconsin, Department of Natural Resources, Creel Census of 1975 and 1978.

popular fish and the basis of the Two Rivers sport fishing industry. For example, the number of Lake Trout caught in the Two Rivers-Port Washington district declined by more than 50 percent in that period. However, in comparison with the total western Lake Michigan Lake Trout catch this represented an improvement of nearly 8 percent in the area's position. This indicates that the rest of western Lake Michigan experienced an even greater drop in the number of fish caught than did Two Rivers.

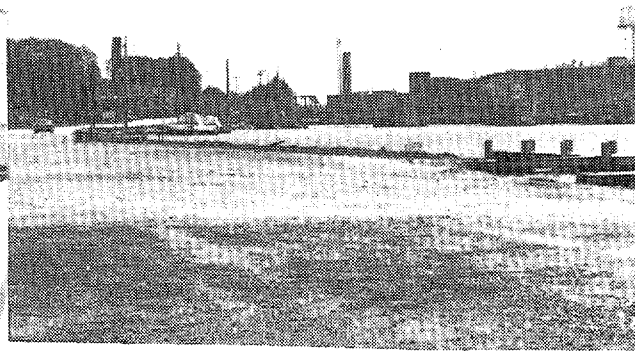
These statistics further illustrate that many factors affect annual catch, particularly such natural conditions as weather and water temperature. Representatives of the DNR and others who earn their living in the sport fishing industry have come to expect the kind of fluctuations seen in the 1970s. Despite the seeming "trend" of declining catch and number of fishermen in Two Rivers, they indicate that sport fishing is growing weekly in the area. There is general agreement that the City of Two Rivers is one of the best places to fish on Lake Michigan, particularly on the Wisconsin shore.

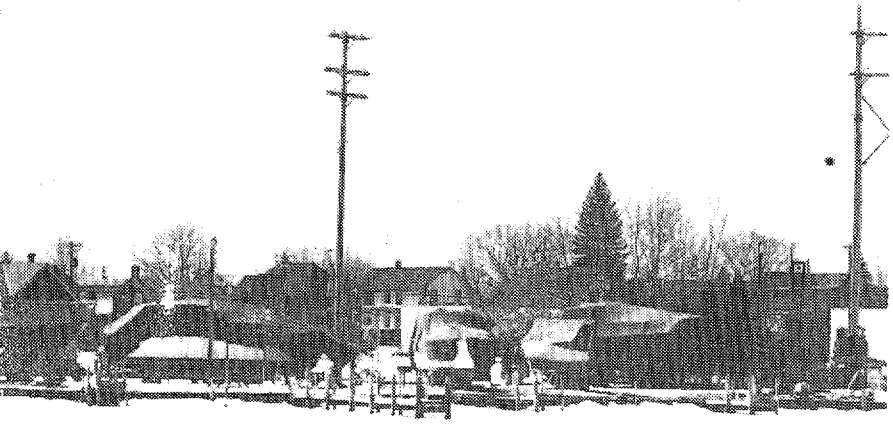
Future Fish Population. The question remains as to whether the number of fish available in Two Rivers will continue to be high. Although many factors affect fish population, one factor that can be quantified is the

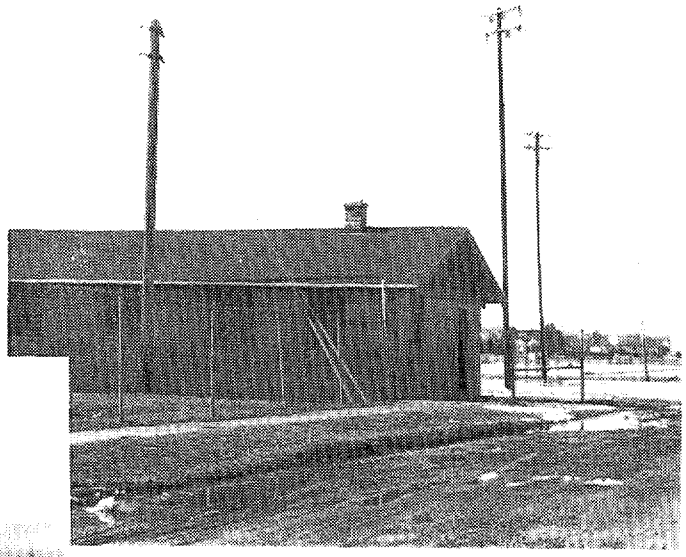


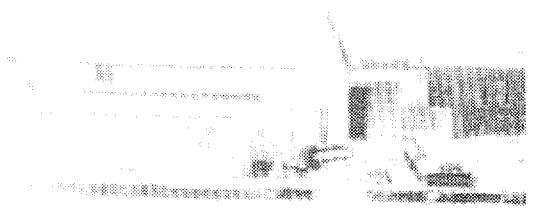

M E R

WCUB SPORT FISHING MACHINE
WS 3417 LG
WCUB
LOA
98

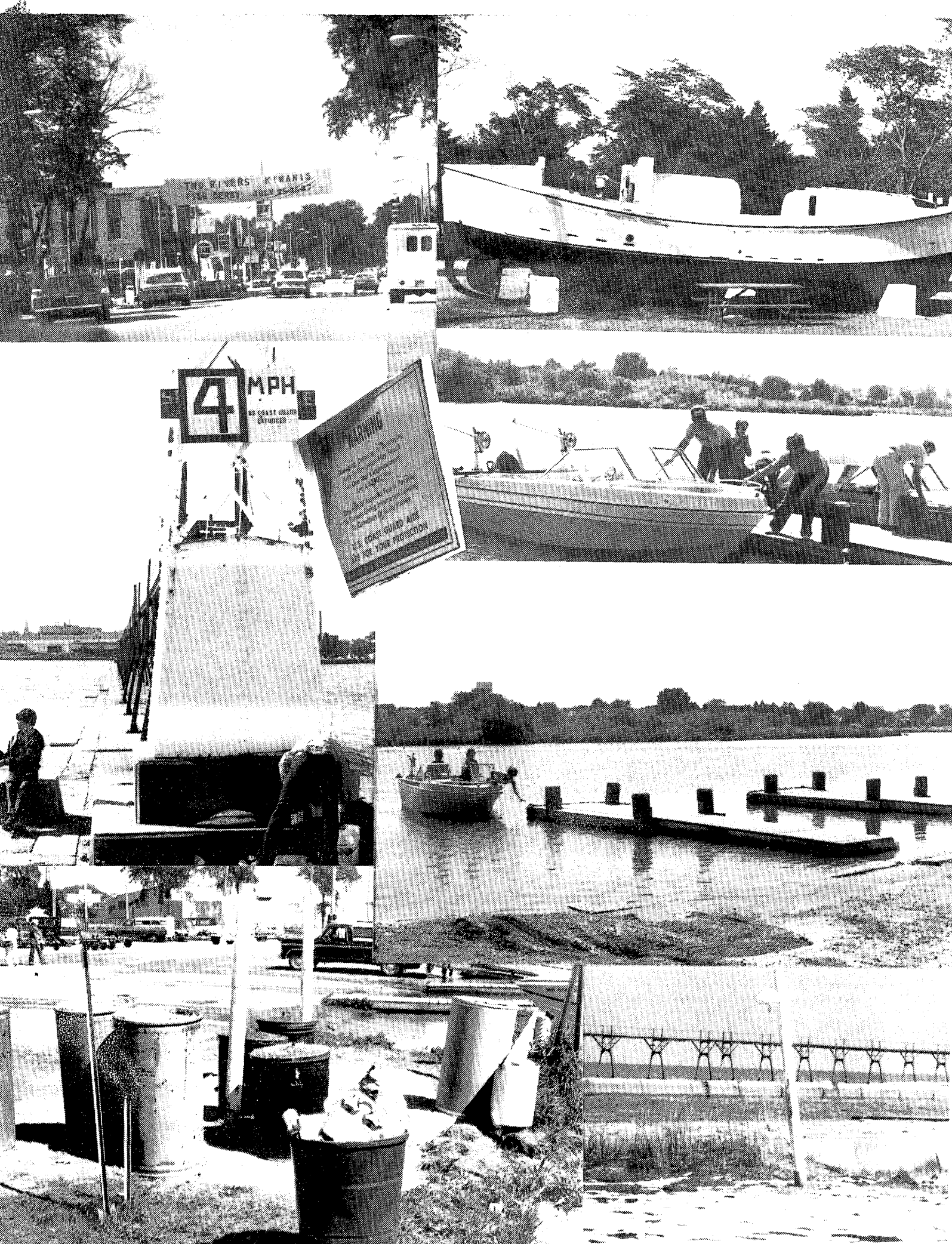




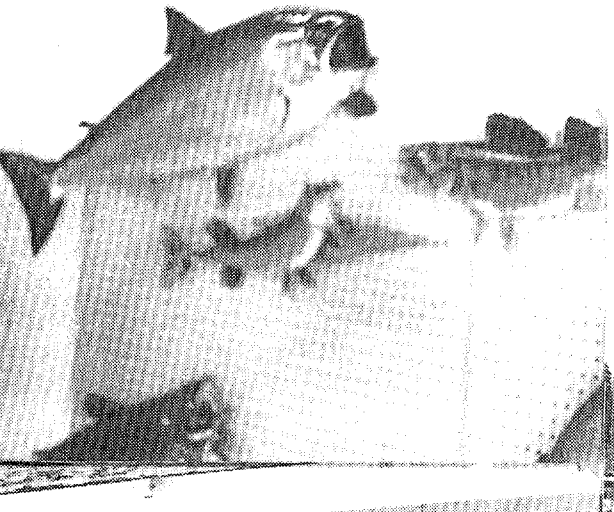




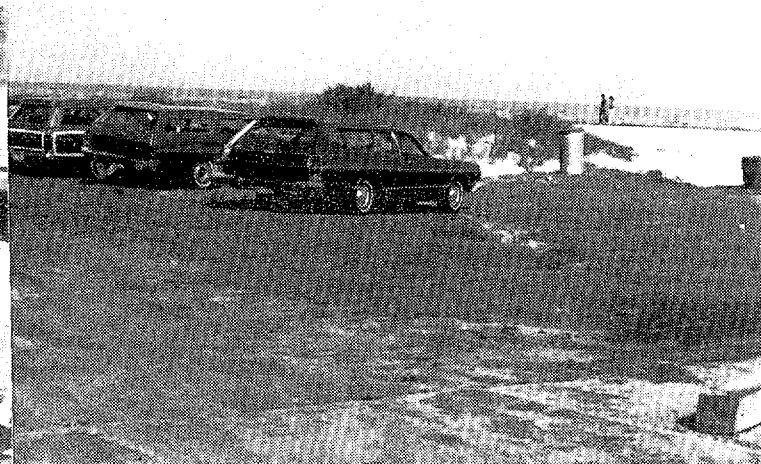
SODA 50
BRATS 75
HAMBURGER 75
BEER
35 3 for 100
35 — Each
WARNING
ALL PERSONS ARE WARNED NOT TO TRESPASS ON THIS PROPERTY OR TO INJURE OR DISTURB ANY PROPERTY OF THE U.S. COAST GUARD
ALL VIOLATIONS WILL BE PROSECUTED
LAUNCH FEE $1.00
ONLY 1 PERSON IN CAR WHILE LAUNCHING
12 FEET DEEP
LIFT-TO PAY


4
MPH
WARNING

NO
PARKING
VIOLATORS WILL
BE TOWED AWAY
AT OWNERS
EXPENSE
USCG



WO RIVERS KIW



number of fish planted. Table 8 shows the number of plants in western Lake Michigan through 1976. Since that time, the number of fingerlings and yearlings that have been planted has continued to increase. Chinook and Lake Trout were planted in the greatest numbers, followed by Rainbow Trout and Coho. Three of these four are the most sought after species by Two Rivers sport fishermen. Though fish planting is only one factor influencing potential catch, if this program continues, it will maintain high numbers of fish to help insure successful catches in Two Rivers.

Table 8

Wisconsin's Lake Michigan Planting Program*

	Species of Fish					
Year	Rainbow	Brown	Brook	Coho	Chinook	Lake
1963	9,200					
1964	15,000					
1965	26,800					205,000
1966	58,699	42,900				761,000
1967	88,640	46,700	9,000			1,129,000
1968	90,315	205,400	25,000	25,000		817,000
1969	148,300	171,000	73,660	217,000	66,000	884,000
1970	192,000	154,000	81,530	340,000	119,000	900,000
1971	179,000	201,210	106,448	267,000	264,000	945,000
1972	586,319	736,605	62,180	258,000	317,000	1,284,000
1973	656,562	570,680	50,150	256,665	697,000	1,080,000
1974	494,918	429,620	33,650	317,950	616,000	880,000
1975	400,818	356,362	63,600	432,700	926,875	1,054,500
1976	963,624	292,112	11,600	647,513	1,275,600	1,045,000

Source: Department of Natural Resources, Lake Michigan Sport Fishery-1976.

*Number of fish planted, fingerling and yearling plant combined.

C. Comments of Private Marina Operators

Private businesses involved in the sport fishing industry in Two Rivers were contacted to determine what facilities and services they provide sport fishermen. Table 12 outlines the facilities and services of each marina.

Table 12

Outline of Private Marina Facilities

Facility	Twin Cities Marina	Two Rivers Sports Marina	Stop 'N Dock Marina	14th & School Rd. Boat Dockage	Rogers Street Dockage
Private Land Area	Total: 30,000 sq.ft. 5 Buildings - (2 leased for boat storage)	Parking: 6,000 sq.ft. 1 Building: 720 sq.ft.	Parking: On-site - 13,200 sq.ft. Off-site - 15,300 sq.ft. 1 Building: 750 sq.ft.	Total: 15,000 sq.ft. Parking: 13,000 sq.ft.	Total: 7,000 sq.ft. Parking: 6,400 sq.ft.
Boat storage	Water: 25 leased 10 potential Indoor: 50 leased 150 potential	Water: 30 leased Outdoor: 4 summer 15 winter 100 potential	Water: 50 leased 90 potential for next season	Water: 21 leased Outdoor: 5 leased	Water: 19 leased Outdoor: 3 leased
Number of Ramps	One	One	Five	None	One
Average Daily Launching	10 weekdays 50 weekends	5-10 weekdays 20 weekends	100 - 150 boats	NA.	--
Other Facilities	Major Boat Repair Fishing Equipment Sales Fish Cleaning Facilities	Major Boat Repair Dumping Station Fishing Equipment Sales Fish Cleaning Facilities	Fishing Equipment Sales		

The marina owners all believed that the number of people participating in sport fishing and sailing in Two Rivers would increase. State statistics indicate that despite the increased cost of resident fishing licenses from $4.25 for an annual individual license to $6.50, and from $7.25 for an annual family license to $10.50, the number of people fishing and boating has increased. One factor which may add to the increasing popularity of fishing may be the energy crisis. Wisconsin residents have begun to vacation closer to home, rather than traveling to the west coast or Florida.

A second factor which has improved resident's perception of fishing and boating on Lake Michigan is the coastal environmental clean-up program. Finally, it stands to reason that improving recreational facilities at Two Rivers will serve to draw greater numbers of people.

There is agreement among the owners of the three largest marinas that the City needs more boat launching ramps. Two of the marina operators felt that these ramps should be provided by the City, while the third felt that launches should be kept as private businesses. In addition, the marina operators had the following recommendations:

(1) Provide area for sail boats to dock within the harbor;

(2) Add extra public and/or private boat launching ramps;

(3) Provide extra parking, especially at Municipal Ramp;

(4) Provide public fish cleaning facilities;

(5) Continue fish planting efforts;

(6) Increase the depth of the existing ramps at Municipal Ramp;

(7) Add restrooms and showers to the Harbor Street lot; and

(8) Continue municipal camper permit system.

ANALYSIS

For over a decade, sport fishing for large salmon has been a popular activity in Two Rivers. This has given rise to a significant business, and prompted the City to improve its recreational fishing services. The City has improved its boat launching facilities, provided cleaning hooks and disposes of entrails at four collection sites.

ONE BLOCK
MERCURY
OUTBOARDS
TWO RIVERS
RESERVATIONS
793-3474
SPORTING GOODS
TWO RIVERS
SPORTS
REGULAR
Regular
76

It is expected that the fish population will remain at its current high level, and that the popularity of fishing will continue to grow. Two Rivers is in the position to become the strongest sport fishing center on the western shore of Lake Michigan. This view is held by DNR officials involved in sport fishing, and is consistent with what is actually happening in the way of fishing and the City's location.

This report establishes objectives which will be reasonably easy to obtain for the benefit of all the people of Two Rivers, whether sport fishermen or not. In addition to the improvement of the City's recreational facilities, residents will receive economic and social benefits.

Sport fishing in Two Rivers has yet to reach its pinnacle among local, area, state-wide and out-of-state fishermen. The City government, private business and service organizations should continue to promote development of this activity to its fullest potential.

CITY-WIDE FACILITIES

The existing and proposed facilities which support the sport fishing industry in Two Rivers, including boat ramps, boat storage and other facilities, are shown on the Facilities Plan Map (Figure #1). There are facilities on both the East and West Twin Rivers and near the harbor entrance, most of which are privately owned.

The City presently has facilities in three locations, ranging from the Municipal Marina on the West Twin River to the minor boat mooring at Harbor Street Park. These services should be maintained and expanded by the City over the next five years. Specific site plans and cost estimates are described later in this report. In general, the Municipal Marina on the West Twin River and the 27th Street Boat Ramp should continue to be the City's primary boat launching areas. With adequate parking, no additional areas for boat launching ramps should be necessary. Harbor Street Park should continue to be a mooring site, and should be expanded to include parking and restrooms with showers. Parking should also be increased at the 27th Street Boat Ramp.

The Municipal Marina at Vets Park is the City's major sport fishing facility. Restroom facilities should be replaced so that they are more available to the public. Parking should also be provided where the baseball diamond is presently located. Though there are other suitable locations in the City for baseball diamonds, this is the most suitable site for the public boat landing. The Vets Park baseball diamond would then be relocated within the City. Temporarily, the planned baseball diamond for the 14th Street Park can replace the Vets Park diamond.

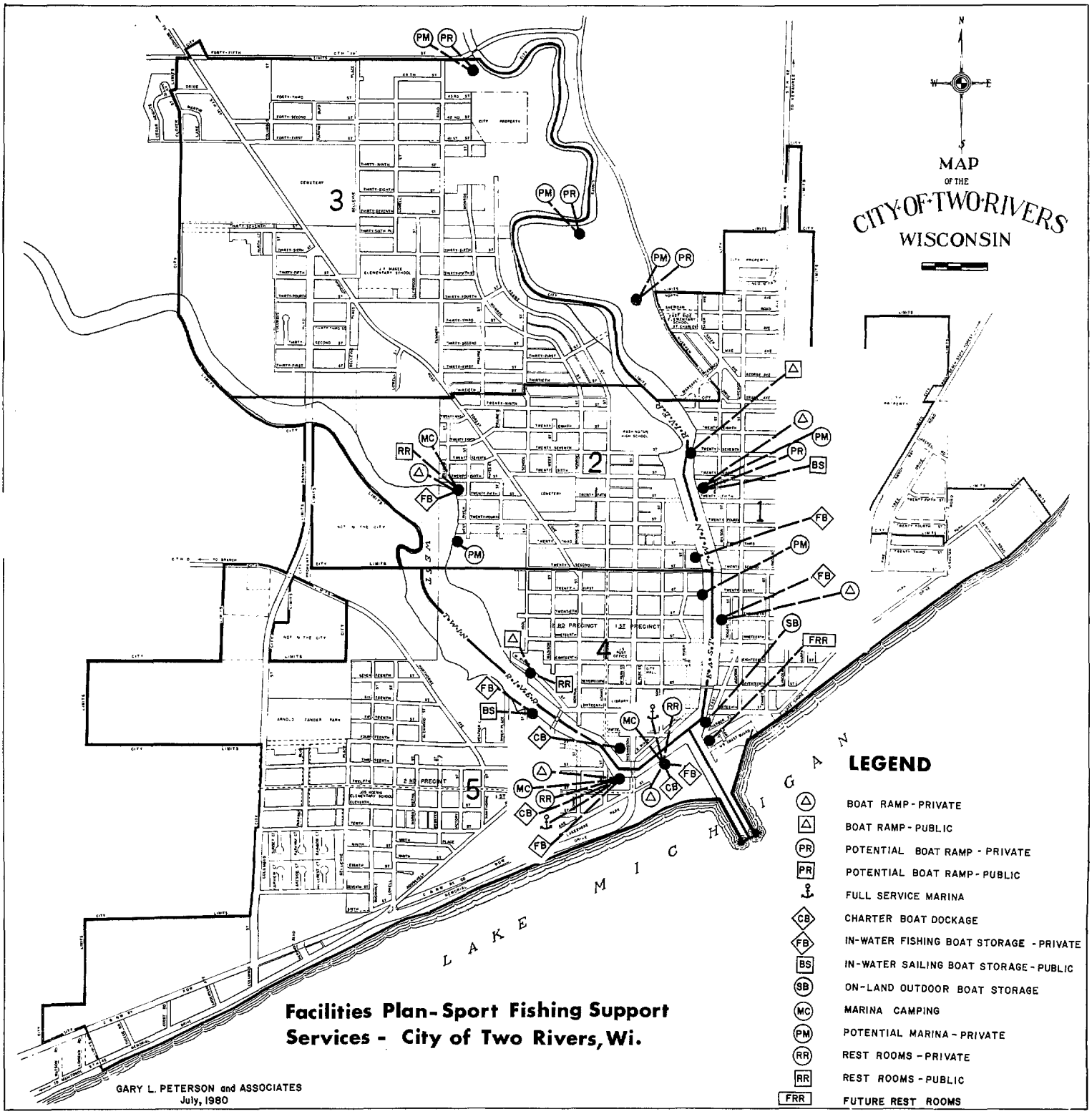

MAP
OF THE
CITY OF TWO RIVERS
WISCONSIN
LEGEND
BOAT RAMP - PRIVATE
BOAT RAMP - PUBLIC
POTENTIAL BOAT RAMP - PRIVATE
POTENTIAL BOAT RAMP - PUBLIC
FULL SERVICE MARINA
CHARTER BOAT DOCKAGE
IN-WATER FISHING BOAT STORAGE - PRIVATE
IN-WATER SAILING BOAT STORAGE - PUBLIC
ON-LAND OUTDOOR BOAT STORAGE
MARINA CAMPING
POTENTIAL MARINA - PRIVATE
REST ROOMS - PRIVATE
REST ROOMS - PUBLIC
FUTURE REST ROOMS
LAKE MICHIGAN
Facilities Plan - Sport Fishing Support Services - City of Two Rivers, Wi.
GARY L. PETERSON and ASSOCIATES
July, 1980

FIG. #1.

These recommendations are based on the fact that the parking lots at the two present boat ramps are taxed to capacity. At the Municipal Marina, the overflow fills the Metal Ware Corp. parking lot and adjacent streets with cars with boat trailers. There is also not enough room at this site for the ballfield, therefore, it should be removed and replaced with a parking lot which is greatly needed in the location.

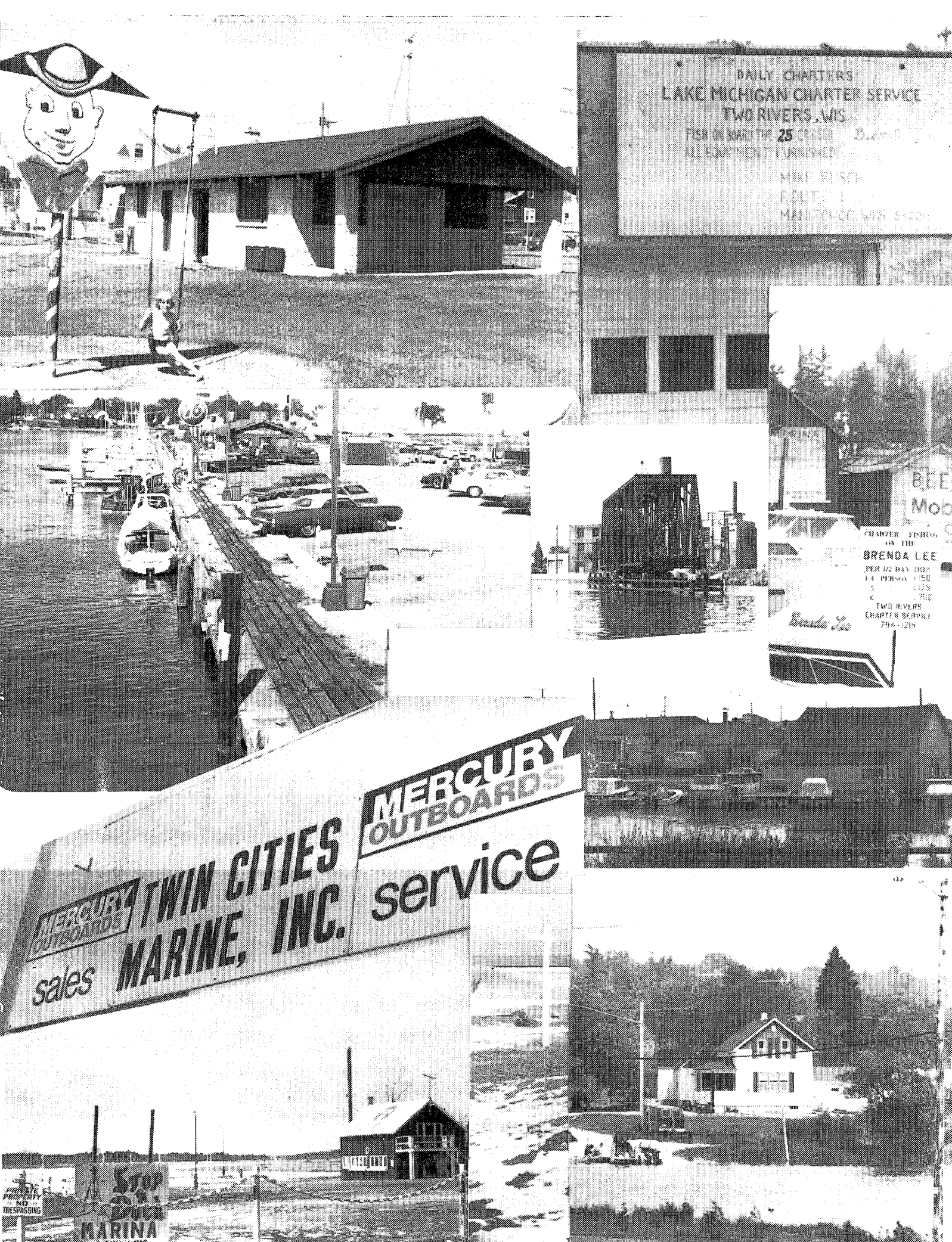
The off-street parking area at the 27th Street Boat Ramp has recently been expanded to hold about 24 cars if neatly aligned. This may be adequate for now, but it is reasonable to expect that demand will grow well beyond the spaces provided. The proposed schematics in this report provide desirable, functional parking lot designs.

The restrooms with showers at Harbor Street Park are principally intended to serve Great Lakes boaters, although sport fishermen may also use them. This park and its facilities should welcome the boating visitor to the City, and provide him with a good impression of Two Rivers. Attracting this type of boater to our shores is an important element in advertising the quality of life of the City.

In time, additional private marinas and boat ramps will most likely be needed, and the private market should provide them as they are demanded. Since there are a limited number of potential sites for such facilities, they will most likely be provided by expansion of present facilities. The East Twin River seems to have the most potential for additional sport fishing facilities, since the vacant areas on the West Twin River are wetlands or have shallow water near shore.

Twin Cities Marina and Two Rivers Sports Marina will continue to be the two major private sport fishing facilities in the City. They presently have a full range of services and potential for expansion. When the Washington Street Bridge is constructed, the Twin City Marina will be precluded from serving sailboats. It is expected that the Two Rivers Marina will then experience increased sailboat patronage.

The three marinas with camping sites are pleased to be able to provide this added service, and expect its popularity to grow in the future. Certainly, as more people become aware of this opportunity, they will take advantage of it.


DAILY CHARTERS
LAKE MICHIGAN CHARTER SERVICE
TWO RIVERS, WIS
CHARTER FISHING
ON THE
BRENDA LEE
TWO RIVERS
CHARTER SERVICE
MERCURY OUTBOARDS
TWIN CITIES
MARINE, INC.
sales
service
STOP
PRIVATE PROPERTY
NO TRESPASSING
MARINA

SITE PLANS AND COSTS

Three locations have been selected as potential sites for expansion of the public sport fishing support facilities in Two Rivers. Each site is described below. Included in each description is a brief analysis of alternative site plans and costs.

A. 27th Street Boat Ramp

There are two proposed plans to expand parking at the 27th Street Boat Ramp. The first proposal is to develop two parking areas on land that is now owned by the City. These areas would accommodate 64 cars with boat trailers--18 on lots 11 and 12, and 46 on lots 6 through 9. Space limitations make diagonal car and boat trailer parking the only reasonable design alternative, as shown in Figure 2.

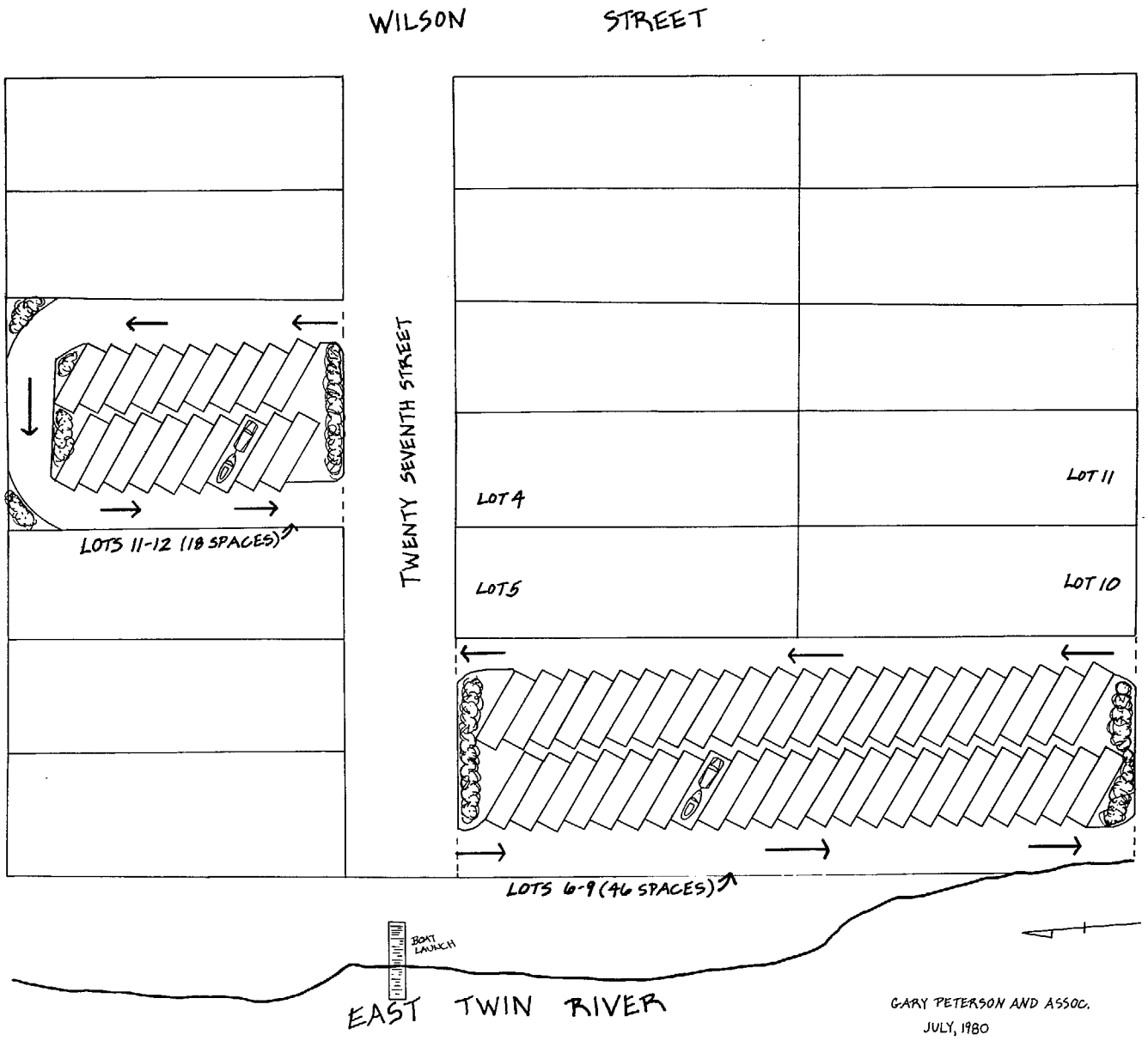
The .34 acre parcel made of lots 11 and 12 was purchased in 1979 with Community Development Block Grant funds. It is estimated that it will cost $3,440 to develop this site with gravel base parking and wooden creosole wheel stops, and landscaping. The estimated cost of bituminous paving, with painted stall lines and landscaping is $5,540. Site costs for all sites are shown in detail in Appendix 1.

The .69 acre parcel consisting of lots 6 through 9 lies south of 27th Street along the river. The estimated cost of gravel base parking with wooden creosole wheel stops and landscaping for this parcel is $6,615. Development with bituminous paving, painted stall lines, and landscaping is estimated at $11,200.

One problem with the site design of the larger parcel is that drivers will have to exit back onto the street if they do not find parking in the aisle they enter. This would cause an inconvenience and may add to congestion, but is not viewed as a major problem. The site could be developed so that turn around aisles are provided within the lot, however, this would reduce the number of spaces which the parcel could accommodate.

The second proposed plan is designed to overcome this shortcoming and increase the number of parking spots to be provided. In this proposal lots 11 and 12 would be developed as in the first proposal. The parcel consisting of lots 6 through 9 would be expanded to include the two adjacent lots, 5 and 10. This parcel would then be 1.03 acres, permitting greater flexibility in parking lot design. Three alternative parking designs have been included for this parcel, as shown in Figures 3, 4, and 5.

SECOND YEAR COASTAL ZONE MANAGEMENT PROGRAM
SPORT FISHING FACILITIES STUDY - TWO RIVERS, WI.



GARY PETERSON AND ASSOC.
JULY, 1980

FIG. #2.

SECOND YEAR COASTAL ZONE MANAGEMENT PROGRAM
SPORT FISHING FACILITIES STUDY - TWO RIVERS, WI.
TWENTY-SEVENTH ST. PARKING ALTERNATIVE #1 (LOTS 5-10)
CAR AND BOAT TRAILER PARKING 63 SPACES

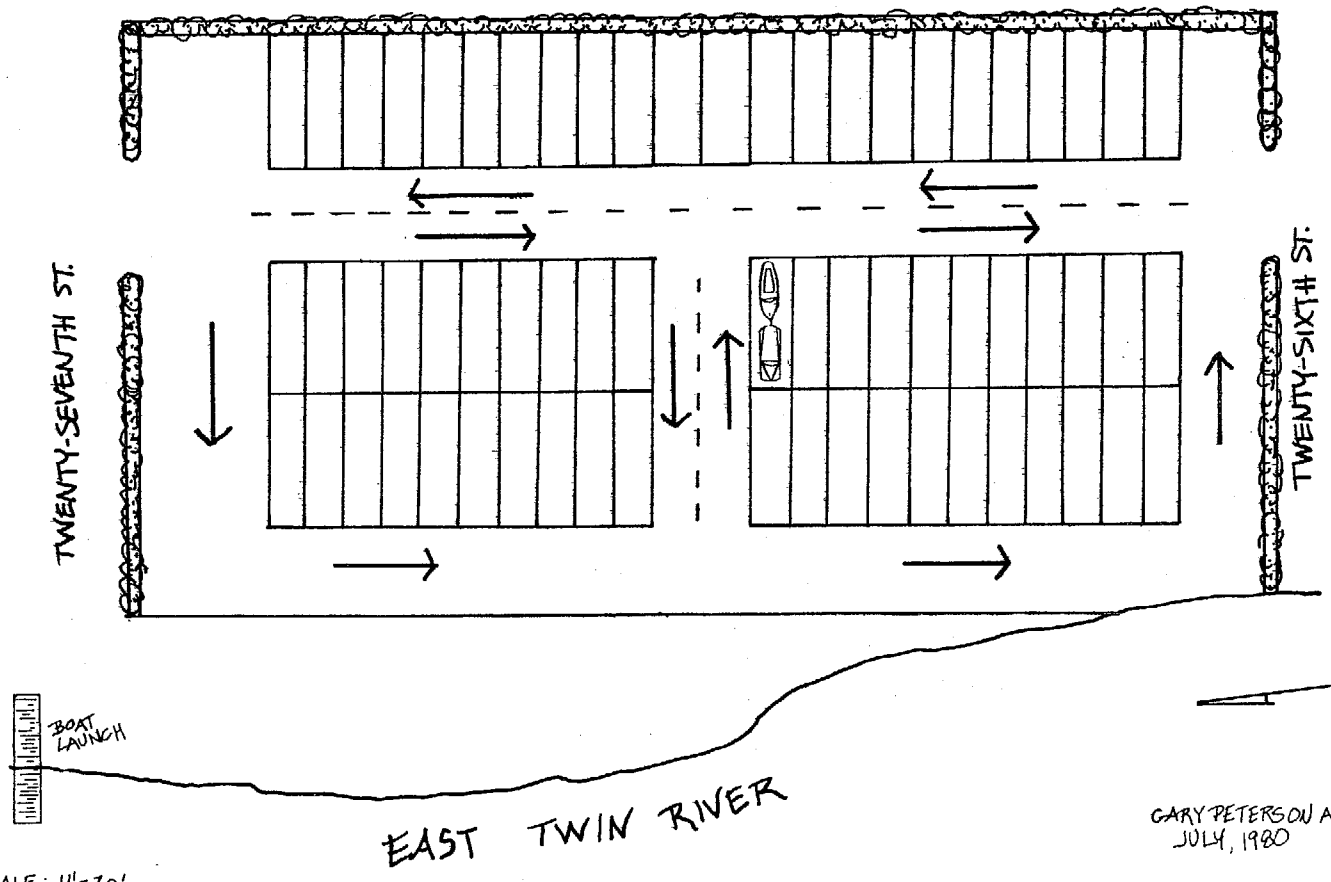


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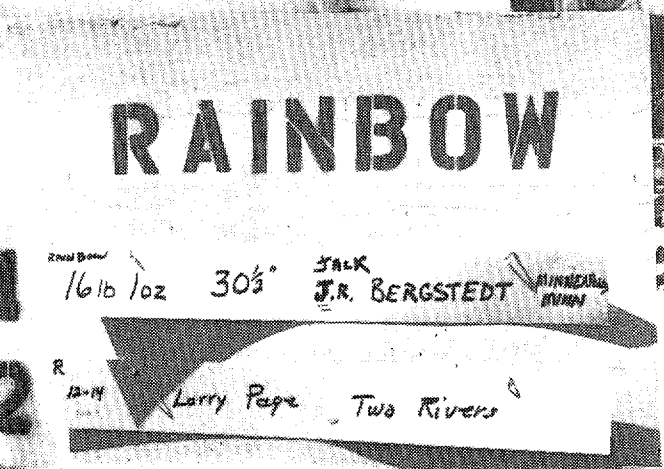
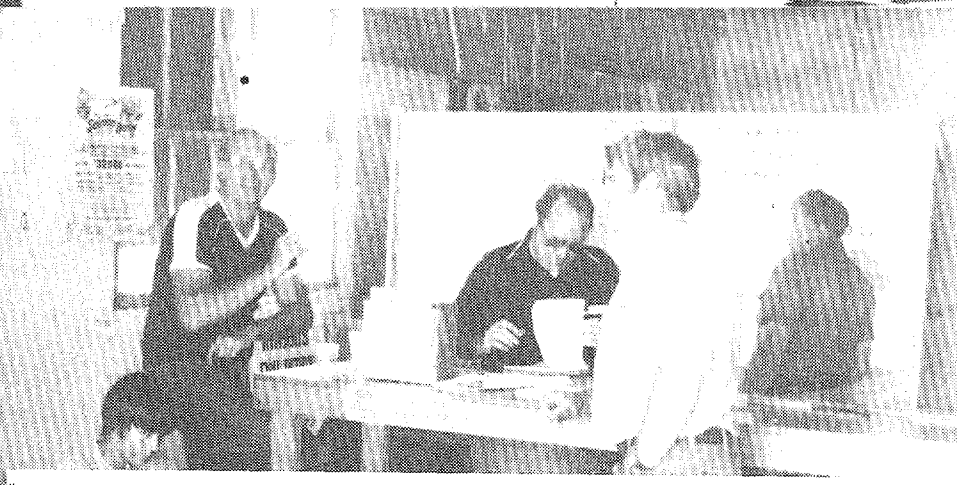
FIG #3.


RAINBOW
16lb 1oz 30½" JACK J.R. BERGSTEDT
12-14 Larry Page Two Rivers

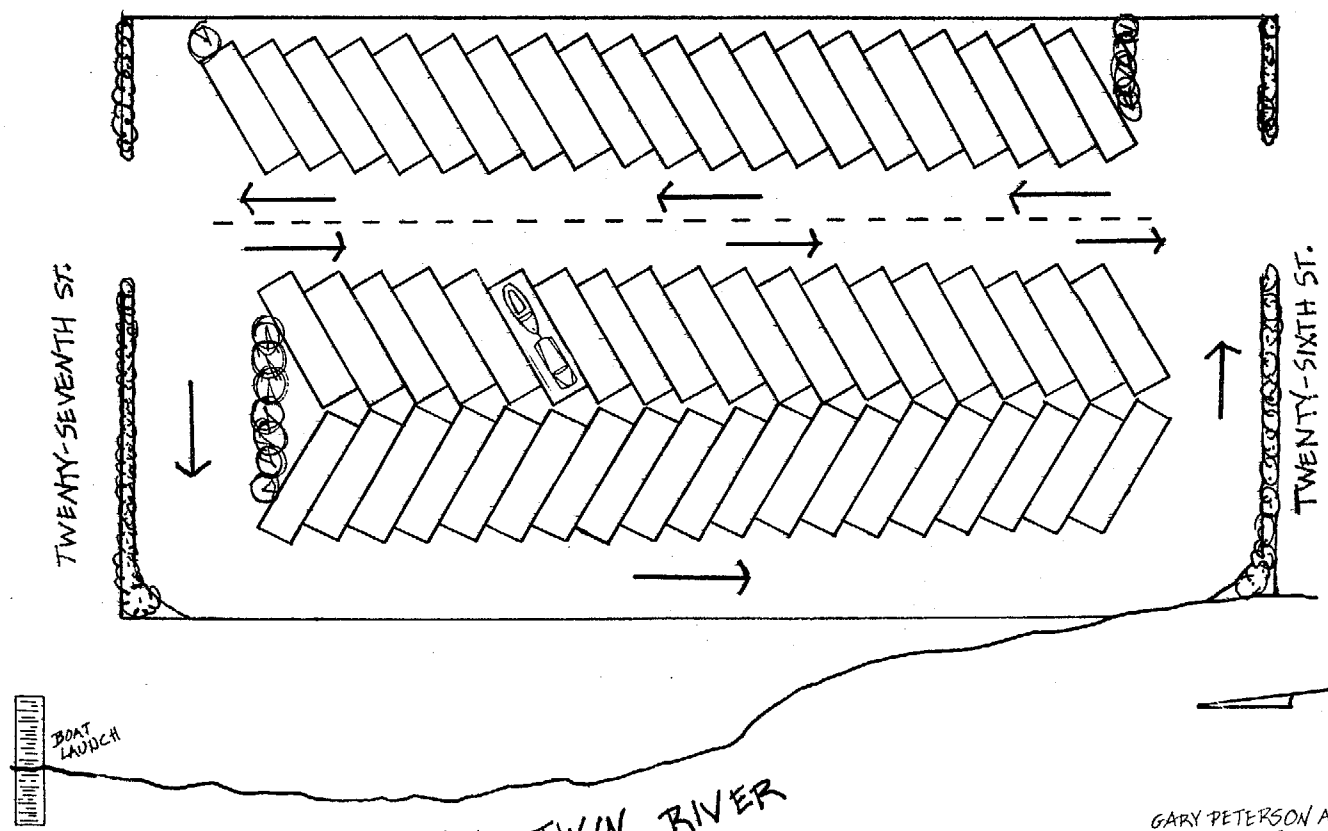
15#- 1oz 30¼" Ruth Young Reedsville



TWO RIVERS KIW

FISH CUTS ONLY

SECOND YEAR COASTAL ZONE MANAGEMENT PROGRAM
SPORT FISHING FACILITIES STUDY - TWO RIVERS, WI.
TWENTY-SEVENTH ST. PARKING ALTERNATIVE #2 (LOTS 5-10)
CAR AND BOAT TRAILER PARKING 60 SPACES



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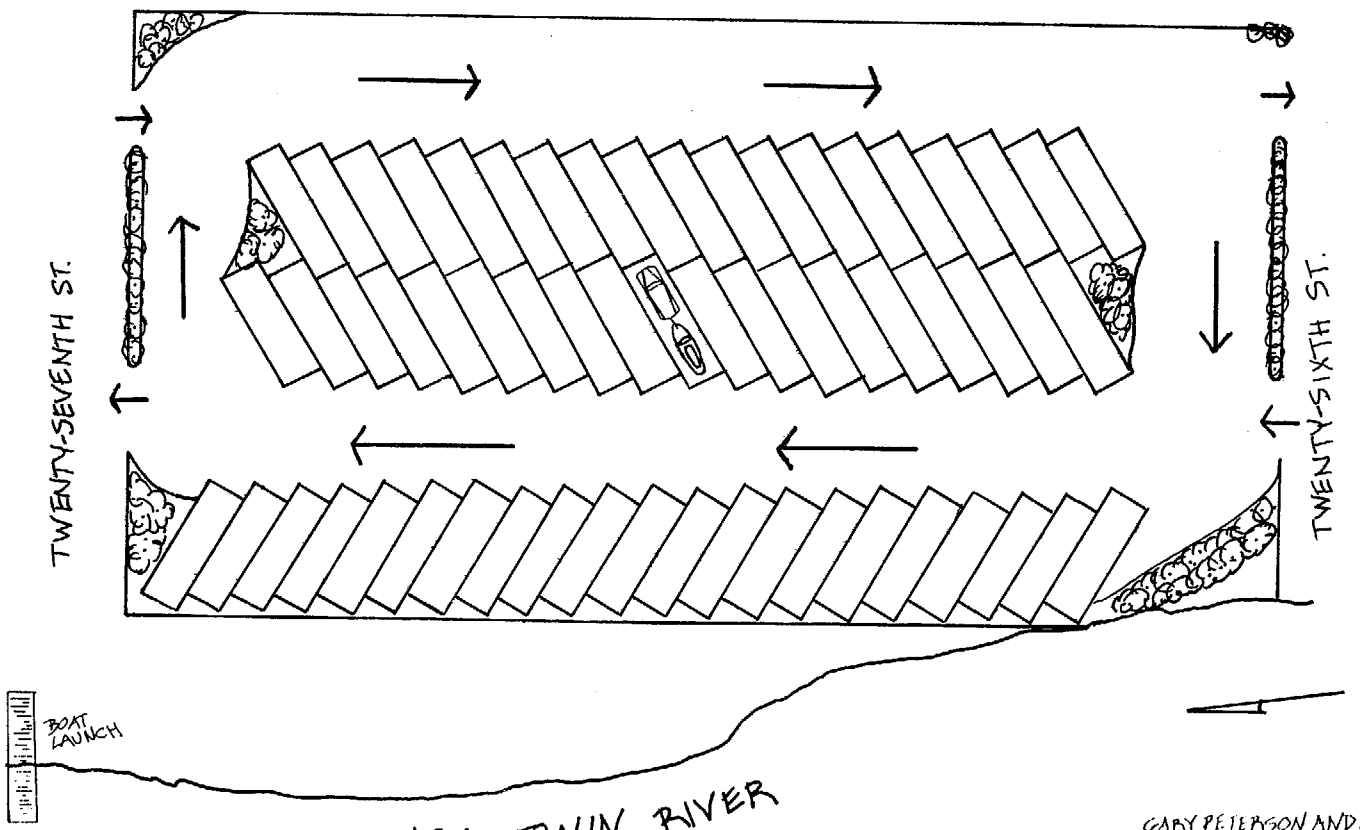
JULY, 1980

FIG #4.

SECOND YEAR COASTAL ZONE MANAGEMENT PROGRAM
SPORT FISHING FACILITIES STUDY - TWO RIVERS, WI.
TWENTY-SEVENTH ST. PARKING ALTERNATIVE #3 (LOTS 5-10)
CAR AND BOAT TRAILER PARKING
59 SPACES



SCALE: 1" = 30'

GARY PETERSON AND ASSOC.
JULY, 1980

FIG #5.

Several factors must be considered when choosing the most appropriate design for parking lots. Diagonal parking stalls have the advantages of easier maneuverability, greater door clearance, and less congestion and smaller space requirements in the parking lot. However, a disadvantage of diagonal parking is that traffic is limited to one direction.

Figure 3 shows a site plan which utilizes 90-degree head-on parking. As designed, the site will accommodate 63 cars with boat trailers. The site plan in Figure 4 is composed of one and one-half bays of diagonal parking with a two-way median road. Total car and boat trailer parking would be 60 spaces. The third site plan, Figure 5, would not have the disadvantages which result when cars with boat trailers are forced to back out into a two-way median road. Stalls are designed diagonally for maximum maneuverability. This site plan would provide spaces for 59 cars and trailers.

The cost of site development would be approximately equal for all three plans, although the latter two (Fig. 4 and 5) would require slightly more landscaping. Gravel base parking with creosole wheel stops and landscaping is estimated at $10,689, while bituminous paving with painted stall lines and landscaping is estimated to cost $16,854.

B. Municipal Marina

The second location for expansion of sport fishing support facilities is the River Street Municipal Marina and Parking. Two alternative parking lot designs for this site are shown in Figures 6 and 7. Currently, parking is limited to 58 stalls lieing between the railroad tracks and the river. The design on Figure 6 would expand parking by 126 stalls by including the area which serves as the Vets Park baseball diamond, for a total of 187 stalls on the site. The second alternative, Figure 7, is designed with perpendicular parking stalls. The total car and boat trailer capacity for this design would be 181 stalls. This is 123 stalls greater than the current municipal parking capacity of 58 vehicles.

The estimated cost of both parking lots is equivalent, however, landscaping costs would run slightly higher for the second design. Gravel based parking with wooden creosole wheel stops and landscaping would cost $32,000 to $33,400. Bituminous paving with painted stalls and landscaping would cost $52,500 to $52,950.

SODA 50
BRATS 75
HAMBURGER 75
BEER
35
BROWN
1 20 lb 10 oz Charles R. Theiss T. R.
2 15 lb 15 oz Paul Klappenbury
3 12 lb 10 oz Mike Hartell T. R.
FISH GUTS ONLY

SECOND YEAR COASTAL ZONE MANAGEMENT PROGRAM

SPORT FISHING FACILITIES STUDY - TWO RIVERS, WI.

PARKING ALTERNATIVE #1

ESTIMATED TOTAL CAR AND TRAILER PARKING - 187

ESTIMATED CAR AND TRAILER PARKING IN BASEBALL FIELD - 129

ESTIMATED EXISTING CAR AND TRAILER PARKING CAPACITY (PRESENT) - 58

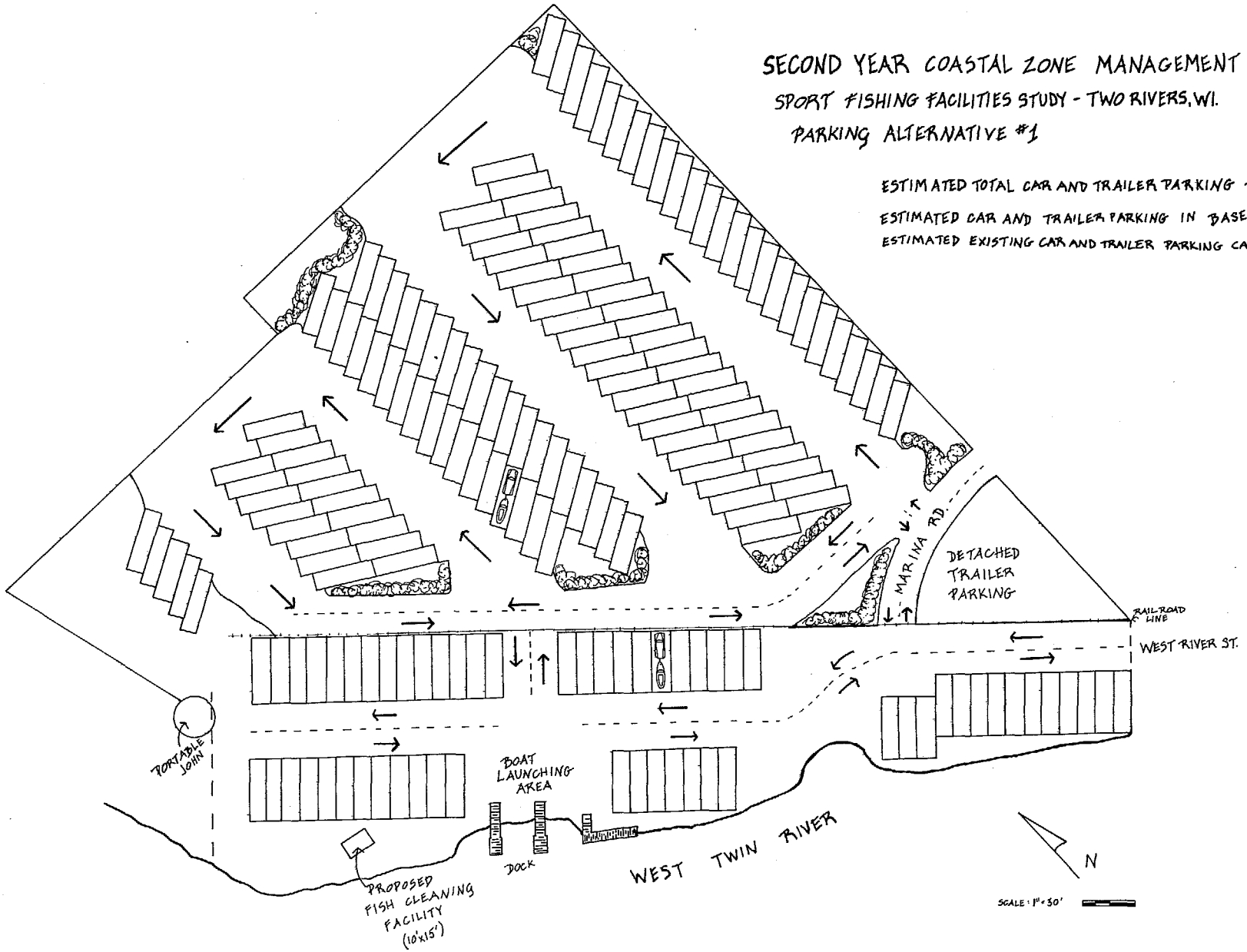


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FIG. #6.

SECOND YEAR COASTAL ZONE MANAGEMENT PROGRAM

SPORT FISHING FACILITIES STUDY - TWO RIVERS, WI.

PARKING ALTERNATIVE #2

ESTIMATED TOTAL CAR AND TRAILER PARKING - 181

ESTIMATED CAR AND TRAILER PARKING IN BASEBALL FIELD - 123

ESTIMATED EXISTING CAR AND TRAILER PARKING CAPACITY (PRESENT) - 58

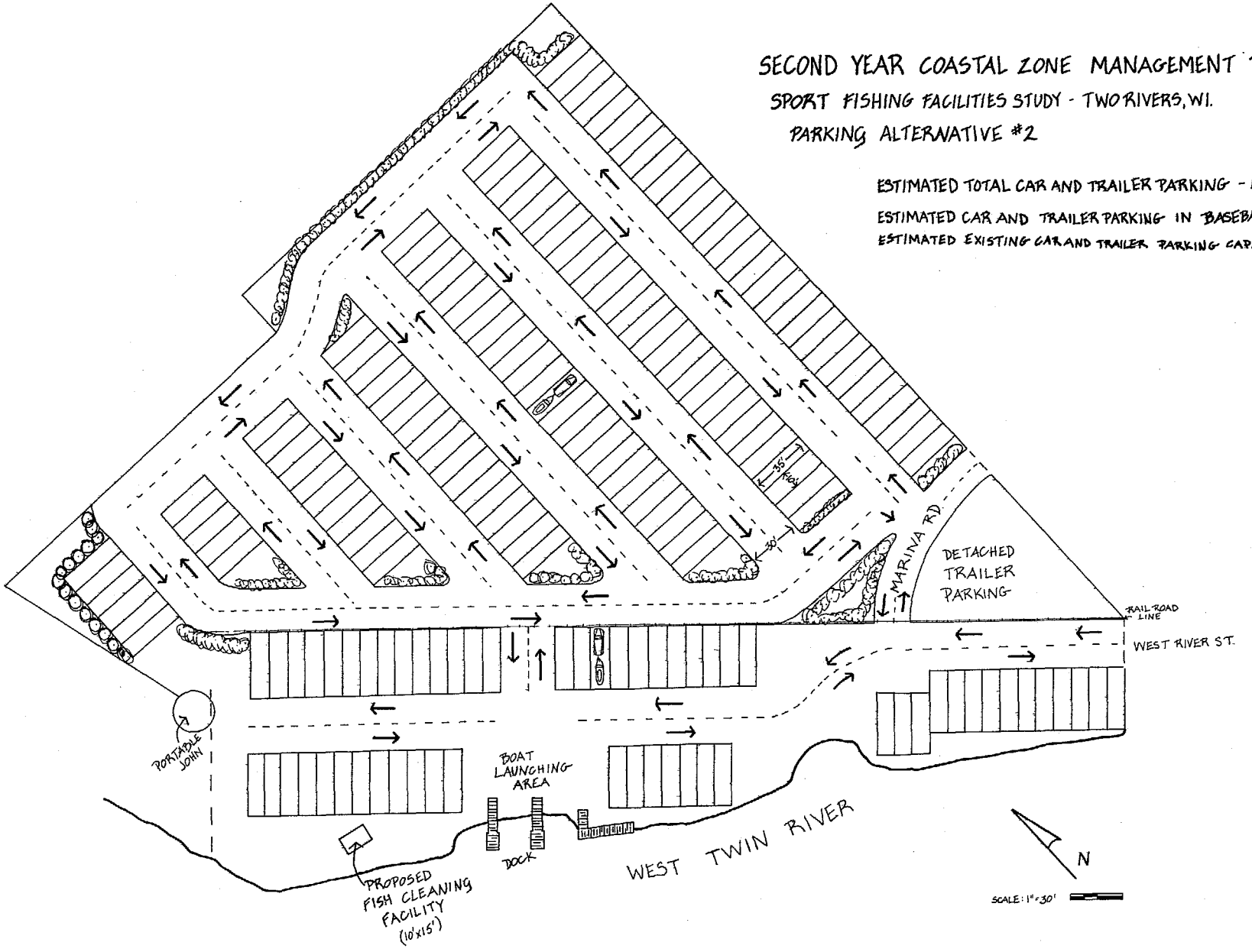

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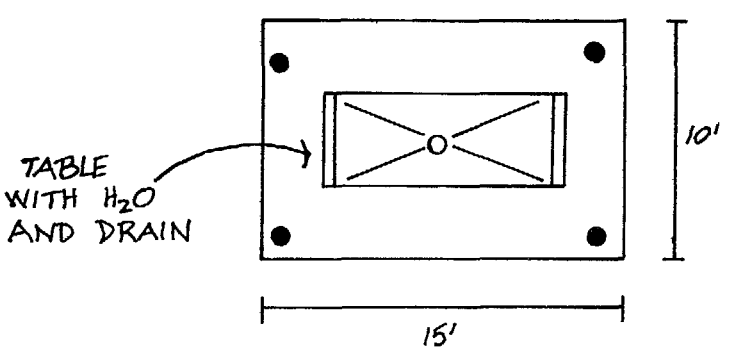
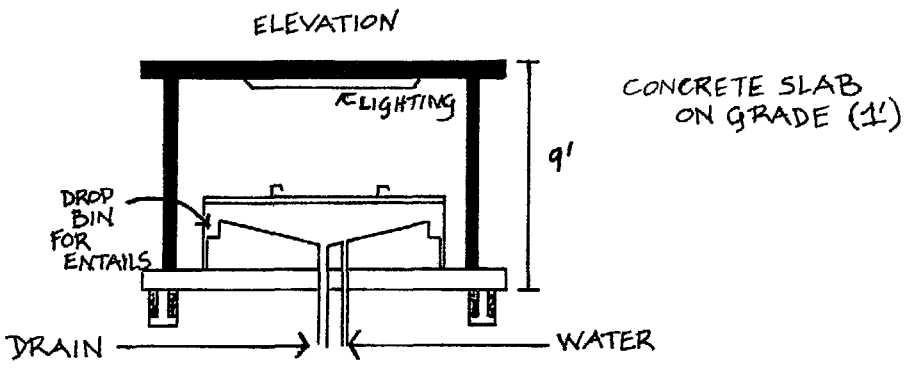
FIG. #7.

SECOND YEAR COASTAL ZONE MANAGEMENT PROGRAM
SPORT FISHING FACILITIES STUDY - TWO RIVERS, WI.

FISH CLEANING FACILITY





1" = 5'

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FIG. #8.

A fish cleaning facility has also been proposed for the River Street site as shown in Figure 8. The proposed location is shown on both site plans, Figures 6 and 7, near the boat launching facilities. The total estimated cost is $2,850, with the detailed estimate shown in Appendix 2.

C. Harbor Street Park

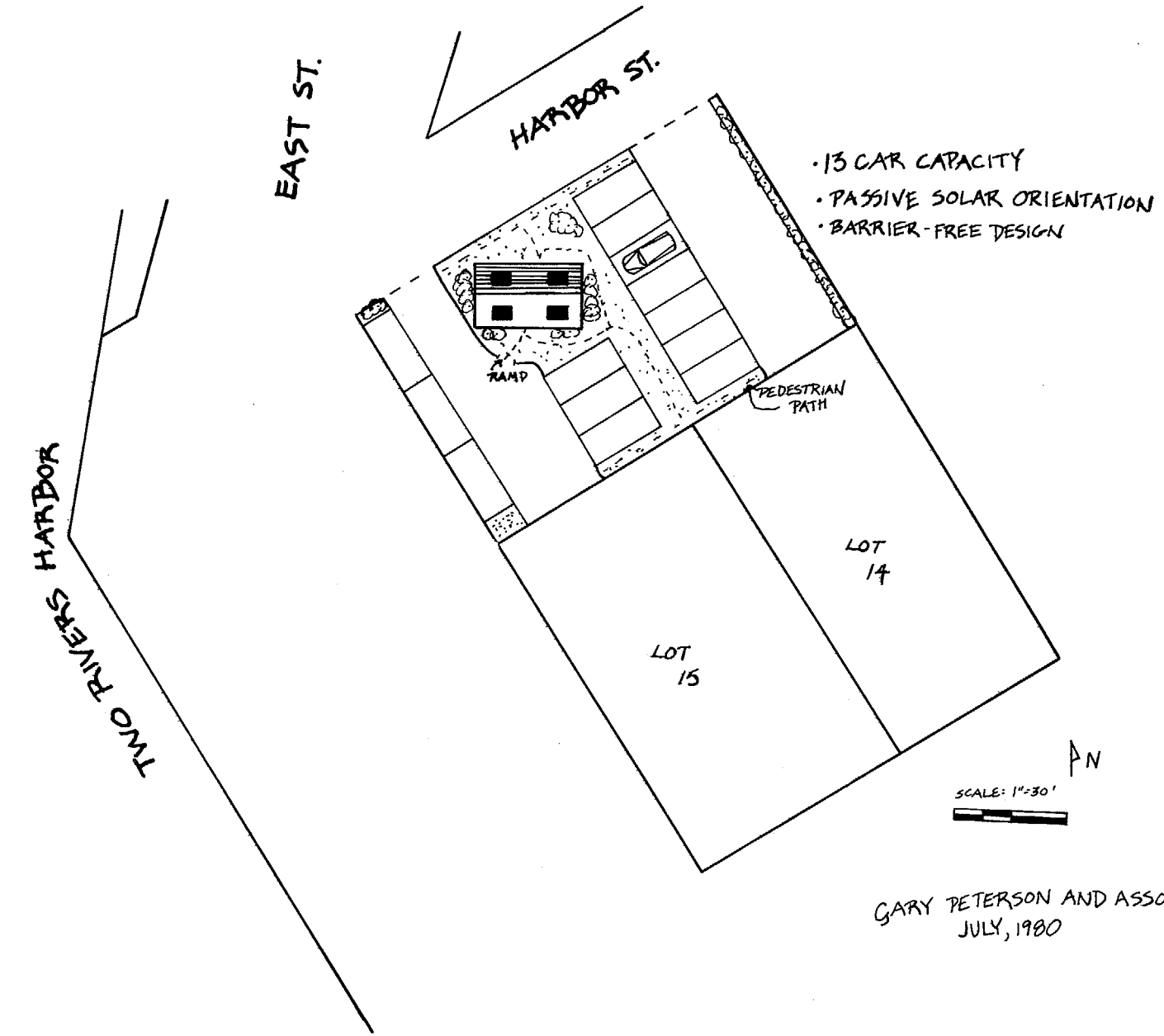
The third location for proposed sport fishing support facilities is located on the corner of Harbor and East Streets. It consists on 0.176 acres including lots 130, 140 and 141. Two alternatives have been developed for this site. The site plans are shown on Figures 9 and 11.

The first alternative, shown on Figure 9, consists of a rest area with showers and parking capacity for 13 cars. Figure 10 shows a building design for the restrooms at Harbor Street Park. It utilizes a passive solar design and complies with architectural standards for barrier free sites and structures. The cost of the building along with site work is estimated at $15,800, as detailed in Appendix 3. This brings the total cost of the rest area with landscaping, a gravel based parking lot and wooden creosoled wheel stops to $17,950. With bituminous paving, painted parking stalls and landscaping the cost would be $18,950.

The second alternative for this site is to use it exclusively for car parking. This is shown in Figure 11. The parking lot would have a 17 car capacity, with 90 degree head-on parking and one-way traffic flow. The estimated cost would be $2,840 for gravel based parking with wooden creosoled wheel stops and landscaping. Bituminous paving, painted parking stalls and landscaping is estimated at $3,860. Site grading cost were included in both of these estimates, and detailed cost estimates are given in Appendix 2.

SECOND YEAR COASTAL ZONE MANAGEMENT PROGRAM - SPORT FISHING FACILITIES STUDY

TWO RIVERS, WI. SITE PLAN FOR HARBOR STREET REST AREA



- 13 CAR CAPACITY
- PASSIVE SOLAR ORIENTATION
- BARRIER-FREE DESIGN

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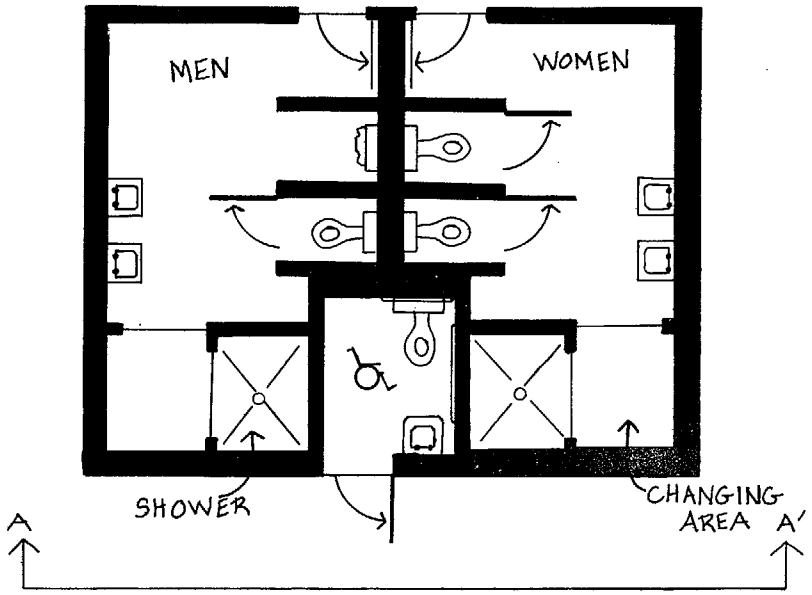
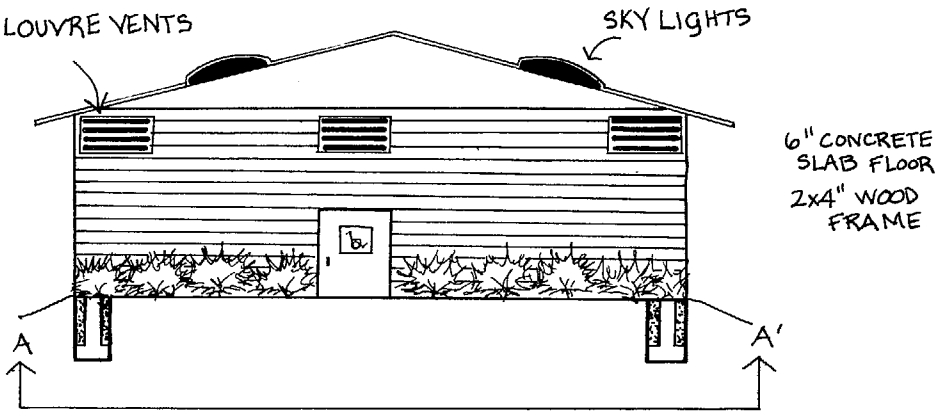
FIG. #9.

SECOND YEAR COASTAL ZONE MANAGEMENT PROGRAM
SPORT FISHING SUPPORT FACILITIES STUDY - REST AREA
TWO RIVERS, WISCONSIN



PLAN VIEW



ELEVATION

SCALE: 1"=5'

HARBOR STREET SITE

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FIG. #10.

SECOND YEAR COASTAL ZONE MANAGEMENT PROGRAM - SPORT FISHING FACILITIES STUDY
TWO RIVERS, WI. SITE PLAN FOR HARBOR STREET PARKING LOT - CARS ONLY

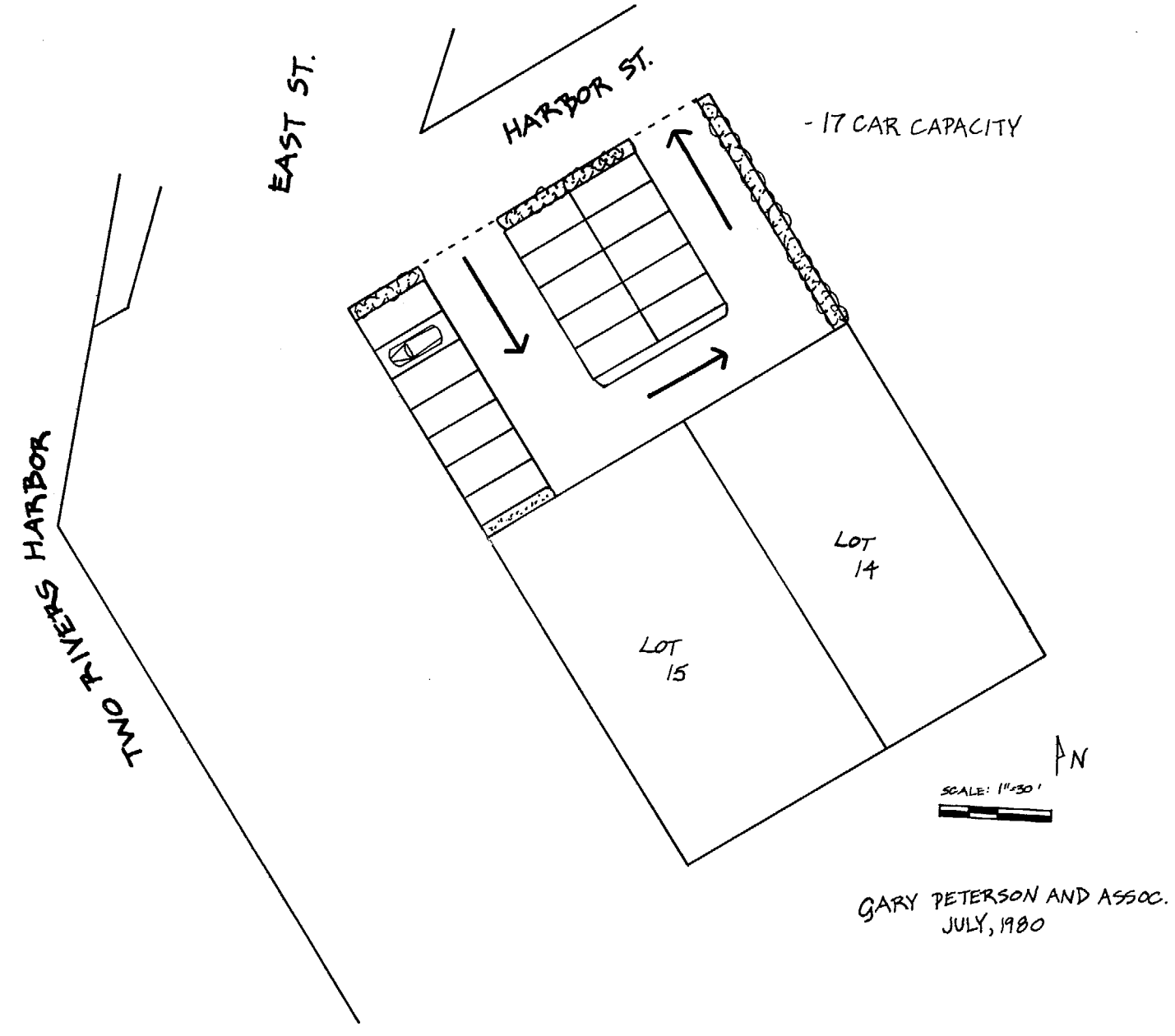

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FIG #11.

Appendix 1

Site Cost Estimates in Detail

27th Street Boat Ramp**

	Option A*	Option B*	
Tax Parcel - Block 9, Lots 11-12			
	$3,094.00	$5,327.63	
	186.30	52.20	
	160.00	160.00	
Total	$3,440.00	$5,539.83	Total
Tax Parcel - Block 4, Lots 6 - 9			
	$6,278.45	$10,811.95	
	52.90	103.60	
	282.80	282.80	
Total	$6,614.15	$11,198.35	Total
Tax Parcel - Block 4, Lots 5 - 10			
	$ 9,390.40	$16,183.40	
	848.70	221.00	
	450.00	450.00	
Total	$10,689.10	$16,854.40	Total

River Street Municipal Marina

	Option A*	Option B**	
	Alt. #1 (Fig. 6)	Alt. #1 (Fig. 6)	
	$29,117.40	$50,723.20	
	1,827.00	810.00	
	1,050.40	1,050.40	
Total	$31,994.44	$52,528.60	Total
	Alt. #2 (Fig. 7)	Alt. #2 (Fig. 7)	
	$29,117.40	$50,723.20	
	1,827.00	810.00	
	1,414.00	1,414.00	
Total	$33,408.80	$52,947.20	Total

*Option A includes 6" gravel base parking, wooden creosoled wheel stops and landscaping. Option B includes bituminous paving, painted lines and landscaping. Cost estimates for each item are given in that order.

**Any costs to purchase lots would be in addition to the development costs.

Appendix 2

Facility Cost Estimates in Detail

River Street Municipal Marina
Fish Cleaning Facility

Site Grading (.52 sq.yds.)	$ 34.60
6" Concrete slab on grade (19.22 cu.yds.)	1,441.50
Slab finish (.27 sq.ft.)	40.50
Concrete roofing (5.10 sq.ft.)	765.00
Pipe columns with concrete fill	126.00
Strip lighting (2 @ $118 each)	236.00
Fish cleaning tables	100.00
Trash containers	104.00
Total	$2,847.60

Harbor Street Park
Rest Area/Lot

	Option A*	Option B*
Alt. #1 (Fig. 9)		
Site Work (Total)	$ 4,619.80	$ 4,619.80
Rest Area	11,189.00	11,189.00
Parking Lot*	1,545.02	2,647.44
Landscaping	489.80	489.80
Total	$17,943.62	$18,946.04
Alt. #2 (Fig. 11)		
Parking Lot*	$ 1,736.01	$ 2,757.83
Landscaping	1,102.00	1,102.00
Total	$ 2,838.01	$ 3,859.83

*The parking area in Option A includes a 6" gravel base lot with wooden creosoled wheel stops; the lot in Option B consists of bituminous paving with painted lines to designate stalls.

Appendix 3

Harbor Street Park Rest Area

Restroom Cost Estimates in Detail

Item and Quantity	Cost
6" concrete slab on grade (19.22 cu.yds)	$1307.00
Slab finish (.27 sq.ft.)	55.00
Exterior siding - Redwood Rough (1.11 sq.ft.)	852.00
Insulation - fiber-foil faced (.29 sq.ft.)	223.00
Roof insulation (.56 sq.ft.)	142.80
Asphalt shingles (.59 sq.ft.)	150.00
Louves - aluminum (1.62 ft.)	29.16
Gutters (2.54 ft.)	86.36
Downspouts (1.75 ft.)	56.00
Wood exterior door with sill (3 63.40)	190.20
Gypsum dry wall - moisture resistant(.58 sq.ft.)	445.40
Paint - 3 coats flat (.37 sq.ft.)	284.20
Lay-in suspension ceiling (1.39 sq.ft.)	567.12
Signage	9.00
Shower stall (2 @ $550.28)	1100.56
Toilet partition (3 @ $201.91)	605.73
Urinal partition	86.05
Toilet paper dispenser (4 @ $19.38)	77.52
Towel dispenser/mirror/shelf/soap unit(3@ 194.08)	582.24
Skylight (4 @ $137.00)	548.00
Feminine napkin dispenser	254.04
Waste receptacle (3 @ $140)	420.00
Floor mounted toilet (4 @ $256)	1024.00
Urinal - wall hung	291.00
Sink - wall hung (5 @ 306.28)	1541.40
Strip lighting - 4-40W (2 @ $118)	236.00
Slim line strip lighting - 2-40W	34.89
Total	$11,198.00