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Measurements of Boating and Fishing, Clear Lake, Summer 1968¹

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Abstract. Between June 29 and July 24, 1968, counts of boats and fishermen on Clear Lake were made at scheduled times. The peak count was 258 boats between 2 and 3 P.M. on a Sunday, about 1 boat per 14 acres. The total per week came to 5747 boat hours, with about 35% of it on weekends. Boat usage declined earlier in the evening on Sundays than on other days. Power boats constituted about 45% of the total boat hours, and fishing boats about 25%. Water skiers were most active in afternoon and evening, and most of the sailboating occurred on Sundays. Fishing effort per week was estimated at 8121 man-hours, and the weekly catch at 3135 fish, including 1932 bullheads and 491 walleyes.

Clear Lake, with a surface area of 3643 acres, provides a significant amount of fishing, boating, water skiing, swimming and other outdoor recreation in north central Iowa. The amount of boating and fishing from June 29 to July 24, 1968 can be estimated from a series of counts made by the first author. The counts were made according to a prearranged schedule twice a day on Saturdays, Sundays, and on two weekdays each week. The counts were made so that each 2-hour period of daylight would be sampled equally. The survey was conducted by making a circuit of the lake by boat and recording the numbers and types of boats and fishermen. For Saturdays and Sundays, the 4-week schedule permitted only one count for each 2-hour period; two counts were averaged for each 2-hour period for the weekday estimates. The fact that the counts indicated a fairly uniform trend through the daylight period, even though the counts were made on different days, suggests that the data are representative. Although the sample size was small, the estimates should be unbiased. Conclusions drawn from the data and comparisons made with other years should be accepted with caution because of the small sample.

BOATING

Boats were classified as fishing craft, sailboats, power boats, power boats with skiers, and other, including canoes and pontoon boats. On weekdays, peak usage was at 5 P.M., but the number of

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boats did not decrease much until after the last counts, about 8:30 P.M. (Figure 1). Power boats constituted about 40% of the usage, fishing boats 29%, and boats with skiers 17%.

The distribution of boating on Saturdays was similar to that on weekdays, but the peak count at 5 P.M. was 124 boats compared with 70. There were thunderstorms on the Saturday when the 6 P.M. counts were scheduled, and no count was secured. The low count at noon is partly the result of occasional rain and light winds at the time the count was made. Some decline in boating at noon is to be expected but probably not as much as indicated. Power boats constituted 44% of the boating, fishing boats 29% and boats with skiers 16%, very similar to the weekday distribution.

The greatest amount of boating occurred on Sundays with a peak count of 258 boats, or 1 for each 14 acres. The highest count of boats on Clear Lake in 1963 (Moen, 1964) was 137 pleasure boats and 1 fishing boat. Unfortunately a thunderstorm occurred on the Sunday when the 4 to 5 P.M. count was to be made, and thus, it is not known whether boat usage usually drops off shortly after 3 P.M. or a bit later. The Sunday evening counts were lower than those on weekdays or Saturdays, probably because many people go home after the weekend. Haugen and Sohn (1968) also noted an earlier decline in boating on Sundays than on other days at Clear Lake and West Okoboji Lake. They also reported that water skiing at Clear Lake in 1967 was concentrated in mid to late afternoon and evening, with little or not activity before 11 A.M. This was also true in 1968. On Sundays, there was a big increase in sailboating, power boating and water skiing. Power boats constituted 48% of the usage, water skiing 17%, fishing 16% and sailboating 12%.

Since the counts were equally distributed throughout the day, their average indicates the average number of boats on the lake at any time, and this average times the length of day in hours indicates the boat-hours of usage (Table 1). The lake is estimated to provide about 5750 hours of boating per week, about 1.6 hours per acre. About 35% of the boating was on weekends. Since two

Table 1
Estimated Number of Boat-hours Per Day on Clear Lake,
June 29 to July 24, 1968 (15-hour day)

	Sail Boats	Power Boats	Water Skiers	Fishing	Other	Total
Weekdays	42	298	127	216	65	748
Saturdays	49	358	132	229	47	815
Sundays	144	568	200	186	94	1192
Week Total	403	2416	967	1495	466	5747

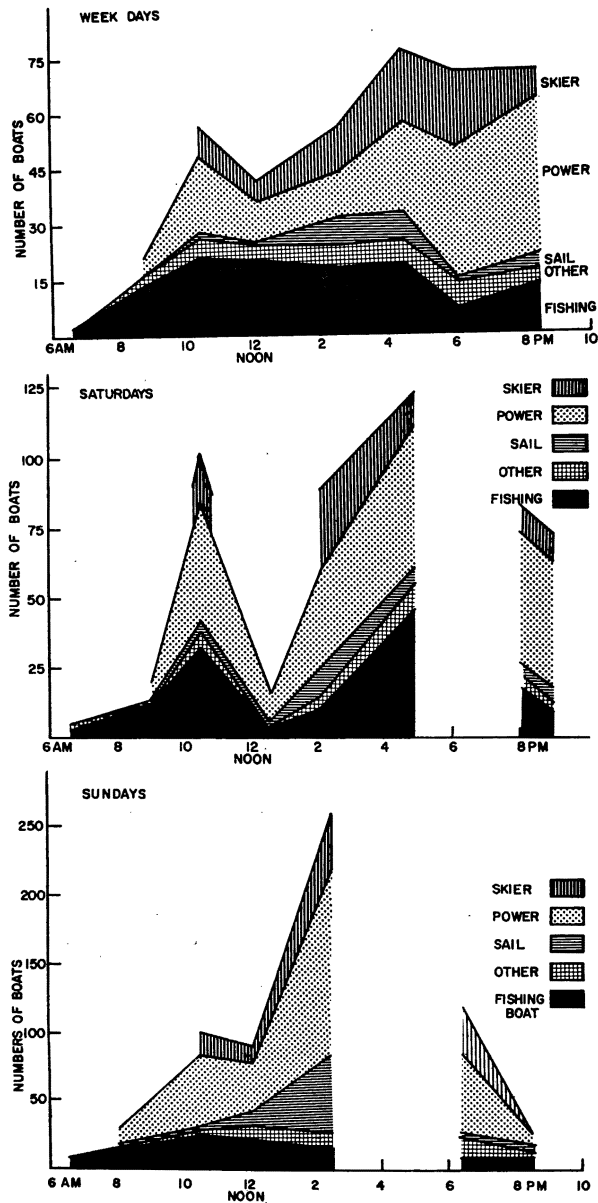


Figure 1. Number of Boats of Each Type Counted on Weekdays, Saturdays, and Sundays. Each point on weekdays is the average of two counts. Counts were missed on Saturday at 6 P.M. and on Sunday at 4 P.M. because of thunderstorms at the time scheduled for the counts. Note that the scale is not the same for each graph.

of the afternoon counts came during rains, the weekend usage was probably underestimated. Haugen and Sohn (1968) found that over half the boating on Clear Lake occurred on weekends in 1967.

FISHING

The numbers of fishermen on shore, wading, on docks, or in boats were recorded on the same circuits of the lake as were the boat censuses. In general there were about equal numbers of fishermen on the docks as in boats and about 10 to 20% of the fishermen were on shore or wading. The diurnal patterns and total numbers of fishermen were similar on weekends and weekdays (Figure 2 and Table 2).

Table 2
Estimated Man-hours of Fishing Per Day on Clear Lake,
June 29 to July 24, 1968 (15-hour day)

	Shore and Wading	Dock	Boats	Total
Weekdays	100	506	510	1116
Saturdays	175	424	671	1270
Sundays	214	521	536	1271
Total	889	3475	3757	8121

Estimates made by similar techniques in 1953 to 1956 indicated 20,000 to 29,000 man-hours of fishing per week (DiCostanzo and Ridenhour, 1957), over 2 or 3 times the 8000 estimated for 1968. The 1953 to 1956 estimates include the entire summer whereas the 1968 data are only for mid-summer. Quantitative creel censuses of the State Conservation Commission indicate 10,000 man-hours of fishing per week in June-July 1960 (Moen, 1961) compared with 2800 to 8100 in 1963 to 1966 (Jennings, 1965; Hollingsworth, 1966, 1967). Conservation commission creel censuses before 1957 do not give comparable estimates of fishing pressure (Moen and Rose, 1958).

During the survey counts, fishermen were asked how long they had fished and how many fish had been caught. In 828 hours of fishing they had caught 359 fish, an average of 0.43 fish per hour. Data indicate better fishing success on weekends than on weekdays but show no consistent difference between morning and evening catches (Table 3). The catch per hour was much lower than in the previous creel censuses on Clear Lake, which indicated more than one fish per hour except in 1956 (DiCostanzo and Ridenhour, 1957) when the catch was about 0.6 fish per hour. Heavy mortality of yellow bass in late 1955 was given as the reason for the poor

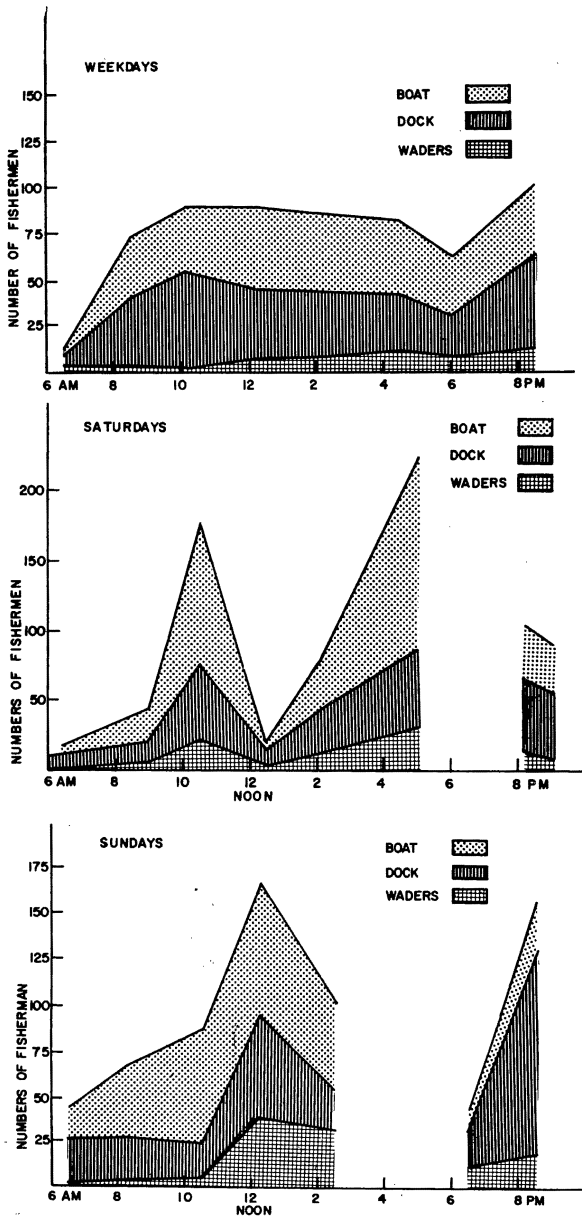


Figure 2. Number of Fishermen of Each Type Counted on Weekdays, Saturdays, and Sundays. Each point on weekdays is the average of two counts. Counts were missed on Saturday at 6 P.M. and on Sunday at 4 P.M. because of thunderstorms at the time scheduled for the counts. Note that the scale is not the same for each graph.

Table 3
Catch Per Hour at Various Times in Clear Lake, June 29 to July 24, 1968

Time	Hours	Walleye	Bullhead	Bluegill	Crappie	Pike	Perch	Total
Weekday A.M.	106	.08	.08	.02	0	0	.08	0.26
P.M.	326	.03	.22	.03	.01	.01	.02	0.32
Combined	432	.04	.18	.03	.01	.01	.03	0.30
Saturdays A.M.	74	.08	.23	.01	0	0	0	0.34
P.M.	125	.06	.42	.06	0	.02	.02	0.59
Combined	199	.07	.35	.04	0	.01	.01	0.50
Sundays A.M.	102	.13	.48	0	0	0	.16	0.75
P.M.	96	.16	.29	.06	.03	0	0	0.55
Combined	198	.14	.38	.03	.01	0	.08	0.65
Combined	828	.07	.27	.03	.01	.01	.04	0.43

The totals also include 1 carp, 1 pumpkinseed, 1 largemouth bass, and 1 turtle.

catch in 1956. Furunculosis almost eliminated yellow bass from Clear Lake in May 1968 (Bulkley, 1969). No yellow bass were reported by anglers in this study, in sharp contrast to previous creel censuses. The catch per hour was about what it would be in the other years if yellow bass were not counted.

Table 4
Estimated Daytime Catch per Week in Clear Lake,
June 29 to July 24, 1968

	Walleye	Bullhead	Bluegill	Crappie	Pike	Perch	Total
Weekdays	223	1004	167	56	56	167	1674
Saturdays	90	445	51	0	13	13	635
Sundays	178	483	38	13	0	102	826
Totals	491	1932	256	69	69	282	3135

If we multiply the number of hours fished by the catch per hour for each type of day, we get an estimated catch of 3135 fish per week (Table 4). This is considerably below the 23,000 to 35,000 reported for 1953 to 1955 and the 12,450 in 1956 (DiCostanzo and Ridenhour, 1957) and the 11,000 and 16,000 reported for 1965 and 1960, respectively (Hollingsworth, 1966; Moen, 1961) and below the 4,700 average in 1963 and 1964 (Jennings, 1965).

The catch of walleyes averaged 491 per week, which is greater than reported for previous years. In 1953-1956, the weekly catch of walleyes was estimated at 46 to 120 (DiCostanzo and Ridenhour, 1957), and in 1963-1966, the walleye catch in July averaged 26 to 295 per week (Jennings, 1965; Hollingsworth, 1966, 1967). Most fishermen considered 1968 a good year for walleye fishing on Clear Lake. This creel census, by starting June 29, missed the best part of the season for walleyes.

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