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Flyway Habitat Management Unit Project

Report No. 11

TITLE: THE EXTENT THAT WATERFOWL HUNTING SPACE MET THE NEEDS OF
WATERFOWL HUNTERS IN 1965

Abstract

In an initial effort to construct a comprehensive picture of where throughout the 48 coterminous United States space for hunting waterfowl limits hunting opportunity, and to determine the magnitude of limitations, two quantitative representations of objectives based on hunting activity in 1965 were subtracted from estimates of the capacity of space available to accommodate hunters in each of the 164 FHMUP management units. The results indicate that space in most units in the Atlantic and Mississippi Flyways was incapable of providing hunting opportunity at specified levels of quality on days when hunters were able or preferred to hunt in 1965. Negative results--deficits, signifying problems--are indicated in 34 out of 44 units in the Atlantic Flyway, and in 50 out of 61 units in the Mississippi Flyway. In the Central and Pacific Flyways, problems are indicated in seven out of 31 units, and in the Pacific Flyway, in only one of the 28 units.

When a more relaxed objective stance is assumed, one that does not require that space be available to accommodate hunters when they are able or prefer to hunt, the number of deficits in the Atlantic Flyway decreases to nine of 44 units; to 36 of 61 units in the Mississippi Flyway; and to only one unit in the Central Flyway. In the Pacific Flyway, a problem is still indicated in one unit.

Some implications of these results and their limitations are discussed.

The information in this report was developed jointly by State fish and wildlife agencies and the Bureau of Sport Fisheries and Wildlife. Summarized information included in this report is for administrative use only and is not for publication without the permission of the Director, Bureau of Sport Fisheries and Wildlife, nor is information for an individual State for publication without the permission of the head of that State fish and wildlife agency. It is subject to change as better information becomes available.

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INTRODUCTION

To determine the adequacy of waterfowl hunting space, it is necessary to compare the number of hunters that space available can support with the number of hunters that want to hunt waterfowl--waterfowl hunter demand--or with the proportion of demand it has been determined to be desirable and feasible to accommodate--hunter capacity objectives. The results of such comparisons are a prerequisite to the development of programs to correct deficiencies.

Such comparisons have been made locally by wildlife agencies, and efforts made to correct serious local deficiencies, but no comprehensive systematic assessment to determine the full extent of problems in the United States has been carried out heretofore.

In an initial effort to identify the location and magnitude of problems throughout the 48 coterminous United States, information on hunting activity in 1965, used as a proxy for objectives, was compared with estimates of the capacity of hunting space available to accommodate hunters the same year in each of the 164 FHMUP management units.* The results in the form of differences provides initial indications concerning where hunting space was adequate in 1965, and where inadequate space most likely limited opportunity. Comparisons were made involving space for all kinds of waterfowl hunting in the aggregate, that is, without regard to the species hunted, and then broken down by space where waterfowl hunting is solely dependent on geese for all practical purposes, in contrast to space where ducks (or ducks and geese together) are the principal draw.

METHODS

Waterfowl hunting demand has not been explicitly defined, and total waterfowl hunting demand throughout the Nation has not been measured. Neither have hunting space and capacity objectives been formulated in specific terms. Hunting activity, however, reflects at least a portion of total demand, and information on waterfowl hunter activity in 1965 was transformed into two representations of objectives. These representations of objectives were subtracted from estimates of the capacity of space available in 1965 to accommodate waterfowl hunters, as presented in FHMUP Report 9.

One representation of objectives is termed "hunters per day-seasonal average", and the other "hunters per day-peak use". The number of hunters per day-seasonal average for each unit was

* A map of these units is attached. The basis for these units is outlined in FHMUP Report 1.

obtained by multiplying the average number of days hunted by potential adult hunters in each unit by the number of duck stamps sold in the unit, and then dividing by the number of actual hunting days in the season. Average days hunted per potential adult hunter were usually State averages for 1965 taken from the 1966 Waterfowl Status Report (Hansen and Hudgens). Duck stamp sales for each unit were based on unpublished data on stamp sales by duck stamp sale zones from the files of the Bureau of Sport Fisheries and Wildlife. Where management units did not correspond to stamp sale zones, necessary adjustments were made. Since duck stamp sales data are gathered and recorded by place of residence, hunters-per-day estimates reflect activity by hunters places of residence rather than where they may actually have hunted.

"Actual hunting days" are the number of days in the 1965 regulation season from which were subtracted the number of Sundays occurring during the season where Sunday hunting is prohibited, and the number of days when there was for all practical purposes no hunting, as a result of freeze-up or any other factor that cut the regular season short. Split seasons were taken into account, of course, but no reductions were made because of "blue-bird" weather or lack of waterfowl during the middle of the season that may have discouraged hunting activity.

"Hunter per day-seasonal average" estimates developed to this point included all waterfowl hunters. From them were broken out the proportion that represented hunting activity on goose-dependent areas--those areas where geese are the principal draw, and without which there would be virtually no waterfowl hunting. This was done several ways. In cases where the duck season in 1965 was split, but the goose season continuous, estimates were based on the level of activity that occurred between the close of the first half and the opening of the second. The level of activity that occurred at that time was determined from data on the percentage distribution of hunting activity by weeks of the season (unpublished, from the files of the Bureau of Sport Fisheries and Wildlife). Averages for the 1962, 1963, and 1964 hunting seasons were used, fitted to 1965 season dates. In other cases, records of hunter use on goose-dependent hunting areas--largely State and Federally managed areas--were used as a basis for estimates.

"Hunters per day-peak use" estimates for each management unit were derived from "hunters per day-seasonal average." Estimates of hunters per day-seasonal average for all waterfowl hunting combined were multiplied by seven days, and then by the percentage

of hunter-days occurring on the day of the week of greatest activity. These percentages were based on unpublished data on the distribution of hunting activity throughout the week taken from the files of the Bureau of Sport Fisheries and Wildlife. Percentages used were 1962-64 averages.

This yielded "hunter per day-peak use" estimates for all waterfowl hunting which was then broken down into estimates for areas where hunting was for geese only and where primarily ducks were the targets. To get an estimate for goose-only areas, we considered "hunters per day-peak use" and "hunters per day-seasonal average" to be the same. Hunting activity on goose only areas seems to be distributed evenly throughout the week in most cases. Peak use of space where ducks only or ducks and geese together were hunted was then obtained simply by subtraction.

RESULTS AND DISCUSSION

Tables 1, 2, and 3 show the extent that hunters afield in 1965 were able to find space to hunt waterfowl at levels of quality specified by capacity standards. A zero or positive result indicates space was adequate, and a positive result--a surplus--indicates more hunters could have been accommodated on the space available. A negative result--a deficit--indicates space was not adequate to support hunters afield in 1965 at the levels of quality specified.

Table 3 provides information by individual management units, the most detailed information. According to these results, space in most units in the Atlantic and Mississippi Flyways was incapable of providing hunting opportunity on days when hunters were able or preferred to hunt in 1965 at the levels of quality specified, that is, when "hunters per day-peak use" estimates are used in comparisons. Deficits are shown for 34 out of 44 units in 15 States in the Atlantic Flyway. In the Mississippi Flyway, there are deficits in 50 out of 61 units, at least one deficit in each State in the Flyway. In the Central Flyway, there are deficits in seven out of 31 units in five States, and in the Pacific Flyway in only one of 28 units.

If the objective in 1965 was to provide space for hunters near where they reside at the level of quality specified on the days when they can or prefer to hunt, then there was a problem in each deficit unit and some sort of program change is needed to increase hunting opportunity. The size of the deficit represents the magnitude of the problem and suggests the magnitude of the action needed to attain objectives.

Surpluses indicate that space was sufficient to meet the needs of resident hunters, and more. Therefore, no action is needed to increase space or capacity. On the contrary, it might be possible and desirable to scale down programs aimed at providing space to hunt.

When "hunters per day-seasonal average" is used in comparisons, a number of deficits disappear. In the Atlantic Flyway, deficits in 25 units disappear. Deficits remain in only nine of 44 units in only five States instead of 15. In the Mississippi Flyway, they decrease to 36 units in 10 States. And in the Central Flyway, a problem is indicated in only one unit. In the Pacific Flyway, there is no change.

It could be inferred that wherever deficits have disappeared space would have been adequate if hunting activity had been distributed uniformly throughout the week. A program alternative might be to encourage hunters to hunt mid-week. Wherever deficits remain, however, the problems are indeed severe.

In the results discussed above, comparisons were made at the individual unit level. They reflect the objective to be: "To provide adequate space for hunters within the units in which they reside." It implies that space should be available in relatively close proximity to hunters' homes. The objective could just as well be: "To provide sufficient space any place within the State where its hunters reside", without regard to the distance they may have to travel within the State. If that is the case, the results in Table 2 apply. In Table 2, there are fewer deficits and the size of deficits remaining have been reduced. Deficits in some units are offset by surpluses in others within the same State. Therefore, the size of a program to reduce deficits with this as the objective would not be as great as one based on the unit stance.

Table 1 simply provides some gross indications of the situation in each of the flyways.

The above sketches the waterfowl hunting space situation without regard to whether the space offered goose-only or primarily duck hunting. There are some differences for areas where geese only were hunted--where geese were clearly the principal draw--as contrasted with areas where ducks or ducks and geese jointly were the targets. Tables 4, 5, and 6 break the results out for these two categories.

Without going into great detail, the results in those tables indicate those hunting geese on goose-only areas in the Atlantic

Flyway where these opportunities were available were better off than those seeking ducks or mixed duck and goose bags. Significantly fewer deficits are shown. In the Central Flyway, individuals seeking geese only were particularly well off. In the Mississippi Flyway, however, those seeking geese only did not seem to be any better off than those seeking ducks, except in the southernmost states in the Flyway.

It should be pointed out that "hunters per day-peak use" and "hunters per day-seasonal average" used in comparisons assume no turnover. Whenever there actually was turnover, deficits shown are inflated. They are greater than reality. Surpluses in those cases, on the other hand, are understated.

The foregoing exemplifies the FHMUP approach to developing a comprehensive picture of the adequacy of hunting space throughout the 48 United States sufficient to determine the extent of needed program changes. It is an effort to structure information in such a way that managers can look at the hunter space component of hunting opportunity in isolation, after ascertaining the adequacy of the resource to attract hunters and provide opportunity. The results are a function of the determinants of acres of space considered available to hunters which sometimes involved somewhat arbitrary decisions. They are described in FHMUP Report 9. Secondly, they are a function of levels of quality reflected in capacity standards (which took into consideration the effect of hunting activity itself on the supply of targets), also discussed in FHMUP Report 9.

Thirdly, the results indicate the adequacy or inadequacy of hunting space only if the hunting activity statistics represent the number of hunters that it is desirable to accommodate, at the levels of quality specified by capacity standards, that is, if they really portray the right objectives. This is not entirely certain. Total demand has not been measured, which is an essential step in the development of objectives. "Hunters per day-seasonal average" and "hunters per day-peak use" reflect only a part of total waterfowl hunter demand. What is not known is the extent that lack of hunting space within reasonable proximity to where hunters live limited activity or discouraged potential hunters from even purchasing a Migratory Bird Hunting Stamp in 1965. This may have been the case in at least some of the units with deficits. For these hunters the price of the commodity was more than they were willing--or able--to pay. To develop programs, objectives are needed that specify the extent these hunters should be accommodated.

In addition, the supply of targets was at a reduced level in 1965, and regulations fairly restrictive. Therefore, the commodity--a day afield hunting waterfowl--can be considered to have been of reduced quality. Hunting activity statistics reflected only those willing to pay for the commodity of reduced quality. They did not necessarily reflect all those willing to pay for a higher quality commodity--a day afield in years when the supply of targets (the fall flight) is greater and regulations are less restrictive. Duck stamp sales and hunting activity does increase in those years, indicating a reservoir of unsatisfied demand that it may be appropriate to take into account in determining hunting space needs. Again, objectives need to indicate how much of this category of unsatisfied demand should be accommodated.

The results in this report do not clearly indicate the extent that the so-called unattached hunter--the hunter not associated with a restricted use area--was able to find a place to hunt. Wherever there are deficits, however, the unattached hunter is the one with the problem. But the results may understate the problem in units where deficits are shown and there may be problems in units without deficits. FHMUP Report No. 10 provides information on space available to the public at large, but it could not be injected into this report. This would require dividing hunting activity data into two sets--activity on lands available only to members of clubs and activity on space available to all. Such information was not readily available. It also would have entailed entering a policy area which we were not prepared to do.

In developing programs for alleviating hunting space problems, the impact on the resource has to be ascertained. Although procedures for developing space and capacity estimates used herein take into account the need to keep hunting activity at a level which would assure that an adequate supply of targets would remain in a locality, from the standpoint of disturbance, they do not assure that harvest or kill will not be excessive. The net result of alleviation of many hunting space problems can result in an increase in kill, and whether such increases can be tolerated has to be determined at the same time as programs to alleviate problems are formulated.

Finally, a sketch of the future is necessary to develop a comprehensive program of assuring adequate hunting space and capacity. Estimates of hunting space and capacity expected to be available in the future compared with predicted demand for hunting or hunting activity or, better still, objectives, would yield information on problems likely to emerge (or likely to be solved)

as a result of future events. Estimates of space and capacity in the Year 2000 were developed, but since hunter demand forecasts were beyond the scope of this project, and no official objectives were available in explicit terms, such comparisons could not be undertaken.

References

Hansen, Henry A., and Mildred R. Hudgins. 1968. Waterfowl Status Report 1966. U.S. Bureau of Sport Fisheries and Wildlife, Special Scientific Report-Wildlife No. 99, pp.

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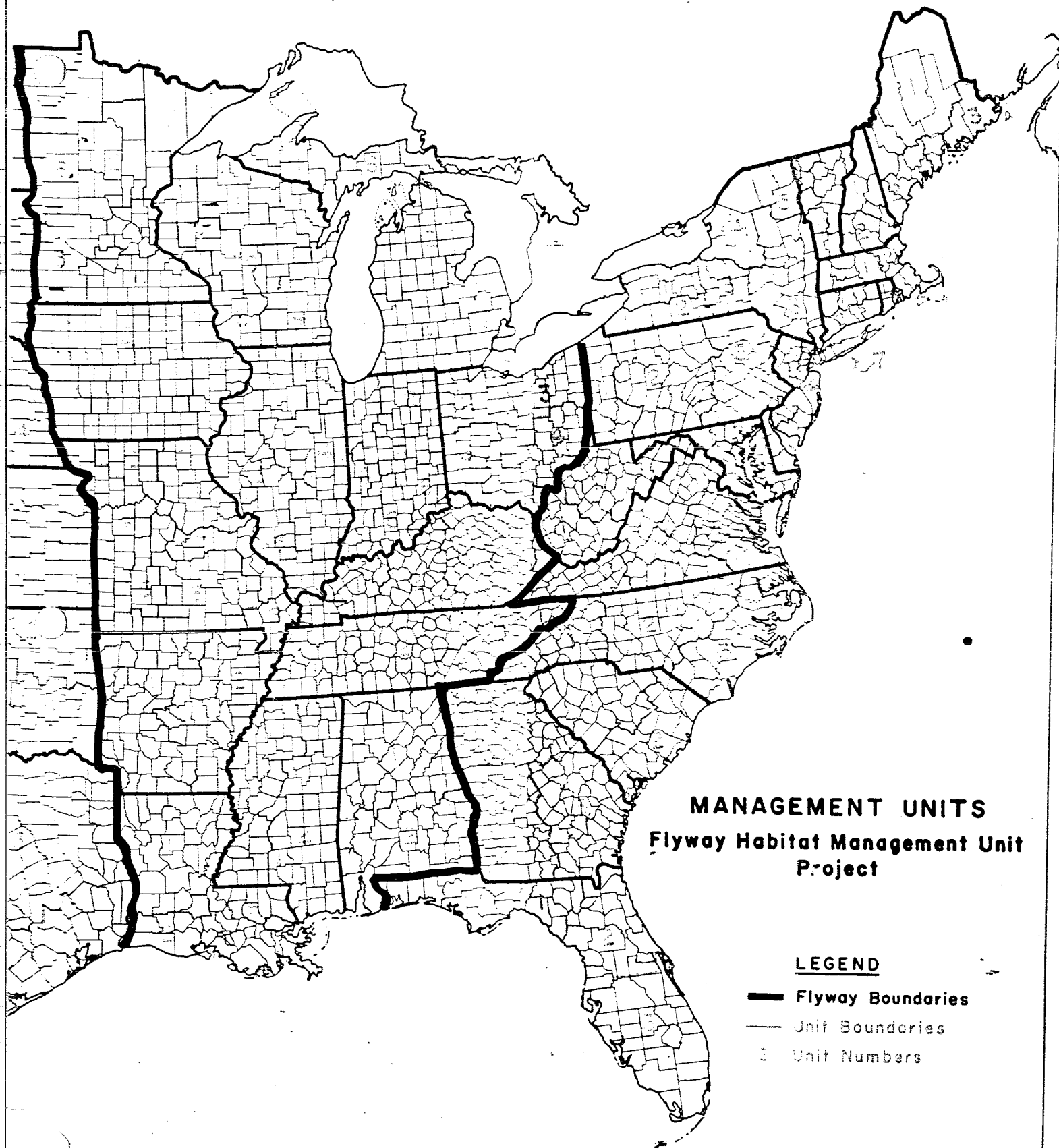




Table 1 - Flyway Totals - The Capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting.

Flyway	1965 Capacity in Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Atlantic	48,830	33,790	1,540	90,740	+41,910
Mississippi	79,750	88,550	-8,800	192,530	-112,780
Central	250,050	31,910	218,140	65,330	184,720
Pacific	160,100	22,740	137,360	57,600	102,500
Totals	538,730	176,990	361,740	406,200	132,530

Table 2 - State Totals - The capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting.

Atlantic Flyway	1965 Capacity in Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Maine	8250	1280	6970	3850	4400
Vermont	1320	710	610	1640	-320
New Hampshire	1450	630	820	1610	-160
Massachusetts	3580	1910	1670	5960	-2380
Connecticut	990	1080	-90	3710	-2720
Rhode Island	380	250	130	640	-260
New York	4940	5430	-490	13950	-9010
Pennsylvania	4150	6050	-1900	16500	-12350
West Virginia	860	110	750	260	600
New Jersey	3640	3720	-80	10160	-6520
Delaware	1920	1120	800	3070	-1150
Maryland	2900	2890	10	8590	-5690
Virginia	1350	1350		3790	-2440
North Carolina	2050	2050		5210	-3160
South Carolina	1340	1340		2990	-1650

Table 2 - State Totals - The capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting. (Continued)

Atlantic Flyway	1965 Capacity in Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Georgia	6120	880	5240	2050	4070
Florida	3590	2990	600	6760	-3170
Totals	48830	33790	15040	90740	-41910

Table 2 - State Totals - The capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting.

Mississippi Flyway	1965 Capacity in Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Minnesota	11210	17390	-6180	44760	-33550
Wisconsin	4680	17530	-12850	38560	-33880
Michigan	15220	8740	6480	17320	-2100
Iowa	3630	5890	-2260	13240	-9610
Illinois	3320	7970	-4650	15640	-12320
Indiana	3210	2300	910	8110	-4900
Ohio	1650	4350	-2700	8340	-6690
Missouri	4680	5420	-740	8320	-3640
Kentucky	850	850		1550	-700
Arkansas	4250	1050	3200	1600	2650
Tennessee	2280	1460	820	2820	-540
Louisiana	11670	12250	-580	25810	-14140
Mississippi	5160	1750	3410	2970	2190
Alabama	7940	1600	6340	3490	4450
Totals	79750	88550	-8800	192530	-112780

Table 2 - State Totals - The Capability of Space Available to Those Hunting Waterfowl of All Kinds in, 1965 to Provide Quality Waterfowl Hunting.

Central Flyway	1965 Capacity in Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Montana	11370	500	10870	1040	10330
North Dakota	78350	5160	73190	9790	68560
South Dakota	50970	4800	46170	9070	41900
Wyoming	2570	180	2390	390	2180
Nebraska	22110	3120	18990	6700	15410
Colorado	11060	2480	8580	5460	5600
Kansas	10120	3790	6330	8800	1320
New Mexico	2050	500	1550	1050	1000
Oklahoma	14690	2530	12160	5230	9460
Texas	46760	8850	37910	17800	28960
Totals	250050	31910	218140	65330	184720

Table 2 - State Totals - The capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting.

Pacific Flyway	1965 Capacity in Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus pr Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Washington	28000	3830	24170	10600	17400
Oregon	20000	2340	17660	5500	14500
Idaho	16500	1630	14870	4200	12300
Montana	13500	1870	11630	3700	9800
Wyoming	1300	50	1250	200	1100
California	53100	10130	42970	25200	27900
Nevada	11800	650	11150	1600	10200
Utah	11000	1580	9420	5000	6000
Colorado	1500	180	1320	600	900
Arizona	2700	370	2330	800	1900
New Mexico	700	110	590	200	500
Totals	160100	22740	137360	57600	102500

Table 3 - The Capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting.

Atlantic Flyway	Unit	1965 Capacity Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Maine	1	2690	290	2400	870	1820
	2	2120	700	1420	2120	
	3	3440	290	3150	860	2580
Vermont	1	890	380	510	890	
	2	430	330	100	750	-320
New Hampshire	1	570	180	390	460	110
	2	880	450	430	1150	-270
Massachusetts	1	570	190	380	600	-30
	2	3010	1720	1290	5360	-2350
Connecticut	1	80	380	-300	1300	-1220
	2	910	700	210	2410	-1500
Rhode Island	1	380	250	130	640	-260
New York	1	1660	1530	130	3930	-2270
	2	120	280	-160	720	-600
	3	730	700	30	1790	-1060
	4	660	580	80	1490	-830
	5	40	120	-80	320	-280
	6	480	1040	-560	2680	-2200
	7	1250	1180	70	3020	-1770
Pennsylvania	1	1450	1960	-510	5350	-3900
	2	700	730	-30	1980	-1280
	3	2000	3360	-1360	9170	-7170
West Virginia	1	420	70	350	170	250
	2	440	40	400	90	350

Table 3 - The Capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting. (Continued)

Atlantic Flyway	Unit	1965 Capacity Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
New Jersey	1	740	1380	-640	3770	-3030
	2	2900	2340	560	6390	-3490
Delaware	1	1920	1120	800	3070	-1150
Maryland	1	600	600		1780	-1180
	2	1000	990	10	2940	-1940
	3	1300	1300		3870	-2570
Virginia	1					
	2	220	220		620	-400
	3	1130	1130		3170	-2040
North Carolina	1	80	80		200	-120
	2	700	700		1780	-1080
	3	1270	1270		3230	-1960
South Carolina	1	510	830	-320	1850	-1340
	2	830	510	320	1140	-310
Georgia	1	300	200	100	470	-170
	2	1560	430	1130	1000	560
	3	4260	250	4010	580	3680
Florida	1	1060	970	90	2190	-1130
	2	910	520	390	1180	-270
	3	1620	1500	120	3390	-1770
Totals		48830	33790	15040	90740	-41910

Table 3 - The Capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting.

Mississippi Flyway	Unit	1965 Capacity in Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Minnesota	1	990	1210	-220	3100	-2110
	2	230	2330	-2100	6000	-5770
	3	830	6650	-5820	17130	-16300
	4	1500	2300	-800	5920	-4420
	5	3100	1760	1340	4540	-1440
	6	3670	1890	1780	4850	-1180
	7	890	1250	-360	3220	-2330
Wisconsin	1	1070	1680	-610	3700	-2630
	2	1660	2860	-1200	6290	-4630
	3	620	1790	-1170	3950	-3330
	4	1330	11200	-9870	24620	-23290
Michigan	1	3990	420	3570	840	3150
	2	2890	880	2010	1740	1150
	3	1540	1610	-70	3200	-1660
	4	3720	3200	520	6340	-2620
	5	500	2200	-1700	4350	-3850
	6	2580	430	2150	850	1730
Iowa	1	950	1020	-70	2310	-1360
	2	830	1910	-1080	4290	-3460
	3	560	1020	-460	2290	-1730
	4	1290	1940	-650	4350	-3060
Illinois	1	1030	1500	-470	2940	-1910
	2	200	2070	-1870	4070	-3870
	3	840	1580	-740	3090	-2250
	4	500	820	-320	1610	-1110
	5	750	2000	-1250	3930	-3180

Table 3 - The Capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting.

Mississippi Flyway	Unit	1965 Capacity in Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Indiana	1	700	1170	-470	4060	-3360
	2	230	330	-100	1150	-920
	3	90	180	-90	630	-540
	4	1850	510	1340	1770	80
	5	300	100	200	380	-80
	6	40	10	30	120	-80
Ohio	1	480	920	-440	1760	-1280
	2	750	640	110	1230	-480
	3	70	1580	-1510	3040	-2970
	4	50	330	-280	630	-580
	5	140	440	-300	840	-700
	6	160	440	-280	840	-680
Missouri	1	1050	1400	-350	2550	-1500
	2	1200	1100	100	2020	-820
	3	780	730	50	1330	-550
	4	320	180	140	320	
	5	120	180	-60	320	-200
	6	220	320	-100	580	-360
	7	200	520	-320	940	-740
	8	790	990	-200	260	530
Kentucky	1	620	620		1130	-510
	2	130	130		240	-110
	3	100	100		180	-80
Arkansas	1	650	690	-40	1050	-400
	2	3600	360	3240	550	3050

Table 3 - The Capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting.

Mississippi Flyway	Unit	1965 Capacity in Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Tennessee	1	1370	1370		2640	-1270
	2	390	40	350	80	310
	3	520	50	470	100	420
Louisiana	1	4370	4370		9210	-4840
	2	3300	3390	-90	7140	-3840
	3	4000	4490	-490	9460	-5460
Mississippi	1	1200	1190	10	2020	-820
	2	3960	560	3400	950	3010
Alabama	1	1550	940	610	2050	-500
	2	6390	660	5730	1440	4950
Totals		79750	88550	-8800	192530	112780

Table 3 - The Capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting.

Central Flyway	Unit	1965 Capacity in Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Montana	3	2940	240	2700	500	2440
	5	8430	260	8170	540	7890
North Dakota	1	23130	1450	21680	2750	20380
	2	25880	1630	24250	3100	22780
	4	29340	2080	27260	3940	25400
South Dakota	1	3260	140	3120	270	2990
	2	32800	2770	30030	5230	27570
	4	14910	1890	13020	3570	11340
Wyoming	1	640	30	610	60	580
	2	1930	150	1780	330	1600
Nebraska	1	9680	400	9280	850	8830
	2	5820	320	5500	690	5130
	3	5350	1410	3940	3030	2320
	4	1260	990	270	2130	-870
Colorado	2	4920	1680	3240	3700	1220
	4	4110	730	3380	1600	2510
	6	2030	70	1960	160	1870
Kansas	1	4840	920	3920	2130	2710
	2	2090	1490	600	3470	-1380
	4	3190	1380	1810	3200	-10
New Mexico	2	700	100	600	210	490
	3	560	310	250	650	-90
	4	790	90	700	190	600

Table 3 - The Capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting.

Central Flyway	Unit	1965	1965 Actual	Surplus	1965	Surplus
		Capacity in Hunters/Day Seasonal Average	Hunters/Day Seasonal Average	or Deficit	Actual Hunters/Day Peak Use	or Deficit
Oklahoma	1	4070	330	3740	690	3380
	2	2930	960	1970	1990	940
	3	2990	970	2020	2000	990
	4	4700	270	4430	550	4150
Texas	1	9650	440	9210	890	8760
	2	760	710	50	1430	-670
	3	30080	2950	27130	5930	24150
	4	6270	4750	1520	9550	-3280
Totals		250050	31910	218140	65330	184720

Table 3 - The Capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting.

Pacific Flyway	Unit	1965 Capacity in Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Washington	1	12000	2320	9680	5700	6300
	2	16000	1510	14490	4900	11100
Oregon	1	6000	1580	4420	3700	2300
	2	4000	320	3680	900	3100
	3	10000	440	9560	900	9100
Idaho	1	1500	160	1340	500	1000
	2	6000	990	5010	2300	3700
	3	9000	480	8520	1400	7600
Montana	1	3500	440	3060	900	2600
	2	10000	1430	8570	2800	7200
Wyoming	3	1300	50	1250	200	1100
California	1	1100	410	690	1000	100
	2	12000	610	11390	1700	10300
	3	16000	3400	12600	8400	7600
	4	11000	3230	7770	7900	3100
	5	10000	580	9420	1500	8500
	6	1000	1200	-200	3000	-2000
	7	2000	700	1300	1700	300
Nevada	1	7000	510	6490	1200	5800
	2	4000	40	3960	200	3800
	3	800	100	700	200	600
Utah	1	9000	1440	7560	4400	4600
	2	2000	140	1860	600	1400
Colorado	1	1500	180	1320	600	900

Table 3 - The Capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting.

Central Flyway	Unit	1965 Capacity in Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Oklahoma	1	4070	330	3740	690	3380
	2	2930	960	1970	1990	940
	3	2990	970	2020	2000	990
	4	4700	270	4430	550	4150
Texas	1	9650	440	9210	890	8760
	2	760	710	50	1430	-670
	3	30080	2950	27130	5930	24150
	4	6270	4750	1520	9550	-3280
Totals		250050	31910	218140	65330	184720

Table 3 - The Capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting.

Pacific Flyway	Unit	1965 Capacity in Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Washington	1	12000	2320	9680	5700	6300
	2	16000	1510	14490	4900	11100
Oregon	1	6000	1580	4420	3700	2300
	2	4000	320	3680	900	3100
	3	10000	440	9560	900	9100
Idaho	1	1500	160	1340	500	1000
	2	6000	990	5010	2300	3700
	3	9000	480	8520	1400	7600
Montana	1	3500	440	3060	900	2600
	2	10000	1430	8570	2800	7200
Wyoming	3	1300	50	1250	200	1100
California	1	1100	410	690	1000	100
	2	12000	610	11390	1700	10300
	3	16000	3400	12600	8400	7600
	4	11000	3230	7770	7900	3100
	5	10000	580	9420	1500	8500
	6	1000	1200	-200	3000	-2000
	7	2000	700	1300	1700	300
Nevada	1	7000	510	6490	1200	5800
	2	4000	40	3960	200	3800
	3	800	100	700	200	600
Utah	1	9000	1440	7560	4400	4600
	2	2000	140	1860	600	1400
Colorado	1	1500	180	1320	600	900

Table 3 - The Capability of Space Available to Those Hunting Waterfowl of All Kinds in 1965 to Provide Quality Waterfowl Hunting.

Pacific Flyway	Unit	1965 Capacity In Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Surplus or Deficit	1965 Actual Hunters/Day Peak Use	Surplus or Deficit
Arizona	1	1000	60	940	200	800
	2	1000	110	890	200	800
	3	700	200	500	400	300
New Mexico	1	700	110	590	200	500
Totals		160100	22740	137360	57600	102500

Table 4 - Flyway Totals - The Capability of Space Available in 1965 to provide Quality Hunting for Those Seeking Geese Only and for Those Seeking Primarily Ducks in 1965.

Flyway	Goose Hunting Only			Primarily Duck Hunting			Surplus or Deficit
	Capacity Goose Hunters/Day Seasonal Average	1965 Actual Goose Hunters/Day Seasonal Average	Surplus or Deficit	Capacity Hunters/Day Seasonal Average	Hunters/Day Seasonal Average	Peak Use	
Atlantic	1380	1820	-440	45640	31970	88920	-43280
Mississippi	9370	6900	2470	70380	81650	185630	-115250
Central	68660	1600	67060	181390	30310	63730	117600
Pacific	-	-	-	160100	22740	57600	102500
Totals	79410	10320	69090	457510	166670	395880	61630

Table 5 - State Totals - The Capability of Space Available in 1965 to provide Quality Hunting for Those Seeking Geese Only and for Those Seeking Primarily Ducks in 1965.

		Goose Hunting Only			Primarily Duck Hunting			
		Capacity Goose Hunters/Day Seasonal Average	1965 Actual Goose Hunters/Day Seasonal Average	Surplus or Deficit	Capacity Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Peak Use	Surplus or Deficit
Central Flyway								
Montana	(E)	3840	170	3670	7530	330	870	6660
North Dakota		28120		28120	50230	5160	9790	40440
South Dakota		10060		10060	40910	4800	9070	31840
Wyoming	(E)	590		590	1980	180	390	1590
Nebraska		5870		5870	16240	3120	6700	9540
Colorado	(E)	4520	800	3720	6540	1680	4660	1880
Kansas		1800		1800	8320	3790	8800	-480
New Mexico	(E)	100	150	-50	1950	350	900	1050
Oklahoma		5130	480	4590	9560	2050	4750	4810
Texas		8630		8630	38130	8850	17800	20330
Totals		68660	1600	67060	181390	30310	63730	117660

Table 5 - State Totals - The Capability of Space Available in 1965 to provide Quality Hunting for Those Seeking Geese Only and for Those Seeking Primarily Ducks in 1965.

Atlantic Flyway	Goose Hunting Only			Primarily Duck Hunting		
	Capacity Goose Hunters/Day Seasonal Average	1965 Actual Goose Hunters/Day Seasonal Average	Surplus or Deficit	Capacity Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Peak Use Surplus or Deficit
Maine	10	10		8240	1270	4400
Vermont	40	10	30	1280	700	-350
New Hampshire				1450	630	-160
Massachusetts				3580	1910	-2380
Connecticut				990	1080	-2720
Rhode Island				380	250	-260
New York	300	330	-30	4630	5100	-8990
Pennsylvania				2350	6050	-14150
West Virginia				860	110	600
New Jersey				3640	3720	-6520
Delaware	500	560	-60	1420	560	-1090
Maryland	160	600	-440	2740	2290	-5250
Virginia	40	40		1310	1310	-2440
North Carolina	290	250	40	1760	1800	-3200
South Carolina	30	10	20	1310	1330	-1670
Georgia				6120	880	4070
Florida	10	10		3580	2980	-3170
Totals	1380	1820	-440	45640	31970	-43280

Table 6 - The Capability of Space Available in 1965 to Provide Quality Hunting for Those Seeking Geese Only and for Those Seeking Primarily Ducks or Ducks and Geese in 1965.

Atlantic Flyway	Unit	Goose Hunting Only			Primarily Duck Hunting		
		Capacity Goose Hunters/Day Seasonal Average	1965 Actual Goose Hunters/Day Seasonal Average	Surplus or Deficit	Capacity Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Peak Use Surplus or Deficit
West Virginia	1				420	70	170
	2				440	40	90
New Jersey	1				740	1380	3770
	2				2900	2340	6390
Delaware	1	500	560	-60	1420	560	2510
Maryland	1	60		60	540	600	1780
	2	50	550	-500	950	440	2390
	3	50	50		1250	1250	3820
Virginia	1						
	2				220	220	620
	3	40	40		1090	1090	3130
North Carolina	1				80	80	200
	2	40		40	660	700	1780
	3	250	250		1020	1020	2980
South Carolina	1	20	10	10	490	820	1840
	2	10		10	820	510	1140
Georgia	1				300	200	470
	2				1560	430	1000
	3				4260	250	580
Florida	1	10	10		1050	960	2180
	2				910	520	1180
	3				1620	1500	3390
Totals		1380	1820	-440	45640	31970	88920

Table 6 - The Capability of Space Available in 1965 to Provide Quality Hunting for Those Seeking Geese Only and for Those Seeking Primarily Ducks or Ducks and Geese in 1965.

Atlantic Flyway	Unit	Goose Hunting Only			Primarily Duck Hunting			Surplus or Deficit
		Capacity Goose Hunters/Day Seasonal Average	1965 Actual Goose Hunters/Day Seasonal Average	Surplus or Deficit	Capacity Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Peak Use	
Maine	1	10	10		2680	280	860	1820
	2				2120	700	2120	
	3				3440	290	860	2580
Vermont	1	40	10	30	850	370	880	-30
	2				430	330	750	-320
New Hampshire	1				570	180	460	110
	2				880	450	1150	-270
Massachusetts	1				570	190	600	-30
	2				3010	1720	5360	-2350
Connecticut	1				80	380	1300	-1220
	2				910	700	2410	-1500
Rhode Island	1				380	250	640	-260
New York	1	240	240		1420	1290	3690	-2270
	2				120	280	720	-600
	3	30	50	20	700	650	1740	-1040
	4	20	20		620	560	1470	-850
	5				40	120	320	-280
	6		10	-10	480	1030	2670	-2190
	7	10	10		1250	1170	3010	-1760
Pennsylvania	1				1450	1960	5350	-3900
	2				700	730	1980	-1280
	3				200	3360	9170	-8970

Table 6 - The Capability of Space Available in 1965 to Provide Quality Hunting for Those Seeking Geese Only and for Those Seeking Primarily Ducks or Ducks and Geese in 1965.

Miss. Flyway	Unit	Goose Hunting Only			Primarily Duck Hunting			Surplus or Deficit
		Capacity Goose Hunters/Day Seasonal Average	1965 Actual Goose Hunters/Day Seasonal Average	Surplus or Deficit	Capacity Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Peak Use	
Minnesota	1	480	280	200	510	930	2820	-2310
	2				230	2330	6000	-5770
	3				830	6650	17130	-16300
	4	160	170	-10	1340	2130	5750	-4410
	5	400	570	-170	2700	1190	3970	-1270
	6				3670	1890	4850	-1180
	7				890	1250	3220	-2330
Wisconsin	1				1070	1680	3700	-2630
	2	400	470	-70	1260	2390	5820	-4560
	3				620	1790	3950	-3330
	4	480	1260	-780	850	9940	23360	-22510
Michigan	1				3990	420	840	3150
	2				2890	880	1740	1150
	3	400	110	290	1140	1500	3090	-1950
	4	400	450	-50	3320	2750	5890	-2570
	5				500	2200	4350	-3850
	6	160	70	90	2420	360	780	1640
Iowa	1	800		800	150	1020	2310	-2160
	2				830	1910	4290	-3460
	3				560	1020	2290	-1730
	4				1290	1940	4350	-3060
Illinois	1				1030	1500	2940	-1910
	2				200	2070	4070	-3870
	3				840	1580	3090	-2250
	4				500	820	1610	-1110
	5	520	1400	-880	230	600	2530	-2300

Table 6 - The Capability of Space Available in 1965 to Provide Quality Hunting for Those Seeking Geese Only and for Those Seeking Primarily Ducks or Ducks and Geese in 1965.

Miss. Flyway	Unit	Goose Hunting Only			Primarily Duck Hunting		
		Capacity Goose Hunters/Day Seasonal Average	1965 Actual Goose Hunters/Day Seasonal Average	Surplus or Deficit	Capacity Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Peak Use Surplus or Deficit
Tennessee	1	120	30	90	1250	1340	2610
	2				390	40	80
	3	160	40	120	360	10	60
Louisiana	1	40		40	4330	4370	9210
	2	1650	290	1360	1650	3100	6850
	3	250	50	200	3750	4440	9410
Mississippi	1				1200	1190	2020
	2				3960	560	950
Alabama	1	220	230	-10	1330	710	1820
	2				6390	660	1440
Totals		9370	6900	2470	70380	81650	185630
							115250

Table 6 - The Capability of Space Available in 1965 to Provide Quality Hunting for Those Seeking Geese Only and for Those Seeking Primarily Ducks or Ducks and Geese in 1965.

Central Flyway	Unit	Goose Hunting Only			Primarily Duck Hunting			Surplus or Deficit
		Capacity Goose Hunters/Day Seasonal Average	1965 Actual Goose Hunters/Day Seasonal Average	Surplus or Deficit	Capacity Hunters/Day Seasonal Average	1965 Actual Hunters/Day Seasonal Average	Peak Use	
Oklahoma	1	3140	160	2980	930	170	530	400
	2	710	110	600	2220	850	1880	340
	3	970	40	930	2020	930	1960	60
	4	310	170	140	4390	170	380	4010
Texas	1	4060		4060	5590	440	890	4700
	2	220		220	540	710	1430	-890
	3	2620		2620	27460	2950	5930	21530
	4	1730		1730	4540	4750	9550	-5010
Totals		68660	1600	67060	181390	30310	63730	117660