

Comments on 1950-51 Kill Figures

The following comments, prepared by the technical staff of the Game Division, are offered regarding the 1950-51 computed kill by hunters and trappers. We know that the figures given are not absolute, but we believe that for the more abundant species they show trends with satisfactory accuracy. In the case of less numerous species, or less sought-after species, accuracy goes down, and other factors such as economic conditions and fur values enter in more strongly. Weather conditions and variations in opening times (hour, date, and day of week) also may have considerable effect.

Pheasant

(See Blouch's memo of April 25, 1951, to regional and district game men).

Ruffed Grouse

There was a 17.7 per cent decrease in the 1950 computed kill of ruffed grouse, compared with 1949--32.2 per cent in the upper peninsula and 8.5 per cent in the lower peninsula. In the upper peninsula there were 12 per cent fewer hunters and the average kill per hunter was lower, indicating that hunting success was poorer. In the lower peninsula, there were 8 per cent fewer hunters but the kill per hunter was better than the previous year, therefore it does not appear likely that hunting success was poorer.

The drop in the computed kill figures agrees with the cooperators' hunting success data of birds shot (based on more than 3,000 gun hours), but birds flushed per gun hour was higher in 1950, in both peninsulas. From this information, it thus appears that for some reason birds were more difficult to bag in 1950. These hunting records may not be a fair sample of conditions throughout the grouse range, however, and since they were made by somewhat better-than-average grouse hunters, may be representative only of the better grouse range.

Neither summer brood counts, nor age and sex ratios of birds shot (see Report 1109) show a significant difference in the 1950 season in either Region I or Region II, compared with last year, so we must conclude that either the breeding stock was "down" last spring in certain areas of the state, or that unusual conditions prevailed which prevented hunters from bagging as many birds.

Last summer we predicted that the grouse population would be about the same as it was in 1949, based mainly on July frequency counts. In August, 1950, however, both regions showed a drop in comparison with the previous August figures, more marked in Region II-- a situation not at all consistent with the computed kill figures.

Summary

All indications considered, it appears quite probable that the 1950 grouse population was "down" somewhat in the upper peninsula, though not as much as the computed kill figures indicate. The reasons for this drop cannot be ascertained, except that it was not due to poor breeding success. Though

it seems a little early, the possibility that the cycle is starting the expected downward swing should not be overlooked.

In the lower peninsula, the population was still holding up well--probably slightly better, on the whole, than the previous year.

Sharptails and Prairie Chickens

Upper Peninsula

The 1950 computed kill of prairie chickens and sharptails in the upper peninsula showed an insignificant decrease of about 1 per cent from the 1949 figure. There was a 5 per cent decrease in the number of prairie grouse hunters and an increase in the reported kill per hunter from 2.8 in 1949 to 2.9 in 1950.

Data on prairie chickens and sharptails shot per gun hour, from cooperators' hunting success data, agrees with the computed kill figures, for there was very little difference in the past two years. Birds flushed per gun hour, however, showed a 28 per cent decrease in 1950 which can not be reconciled with any of the other population indices. The high success (in birds flushed) in 1949 seems out-of-line with the other years, as shown below:

1946	.....	1.64	birds	flushed	per	gun	hour
1947	.....	2.71	"	"	"	"	"
1948	.....	3.98	"	"	"	"	"
1949	.....	6.12	"	"	"	"	"
1950	.....	4.37	"	"	"	"	"

A possible explanation may be that in 1949 the sharptails seemed to have flocked up earlier than usual and that a relatively few hunters who happened to see large flocks increased this average considerably.

Last spring's dancing ground census showed about 30 per cent increase over the previous year, last fall's age ratio was much better than average, and there was no significant difference in sex ratios from previous years. In addition, the consensus expressed by the district game supervisors is that sharptails were more abundant in the fall of 1950. Most of the evidence, therefore, shows the 1950 population to be at least as good as it was in 1949, very likely somewhat better, for the upper peninsula. The prairie chicken population is insignificant by comparison with sharptails and very few were shot.

Lower Peninsula

Only four counties and Beaver Island were opened to taking prairie chickens in the lower peninsula. Due to the relatively low numbers shot the computed kill figures are not reliable and are in no way comparable to any previous data for showing trends. It is known that less than 50 sharptails were shot on Beaver Island and probably not more than 250 sharptails and prairie chickens combined on the mainland, though only a very few prairie chickens were actually known to have been taken.

Since there was no open season the previous year, the kill records cannot be compared, but other inventories show a good increase in the population of both species in 1950.

Waterfowl

Statistics from waterfowl hunter reports for 1950 compared to 1949 indicate a marked drop (30 per cent) in hunting pressure and also a marked decrease in the kill of ducks (39 per cent), coots (52 per cent) and geese (50 per cent). The average hunter success dropped 8.5 per cent.

CHART I

	<u>1949</u>	<u>1950</u>	<u>% change</u>
Small game licenses sold	626,941	620,192	down 1%
Computed duck hunters	106,090	71,111	down 33%
Computed duck kill	625,348	383,400	down 39%
Computed duck kill per hunter	5.9	5.4	down 8.5%
Computed coot hunters	19,182	10,088	down 47%
Computed coot kill	90,707	43,349	down 52%
Computed kill per hunter	4.7	4.3	down 8.5%
Computed goose hunters	22,642	14,253	down 37%
Computed goose kill	48,714	24,483	down 50%
Computed goose kill per hunter	2.2	1.7	down 22.7%

CHART II

	<u>1950</u>	<u>1948</u>	<u>10 Year Average</u>
Computed duck hunters	71,111	78,833	77,502
Computed duck kill	384,400	407,141	489,513
Computed kill per hunter	5.4	5.16	6.3
Computed coot hunters	10,088	17,037	14,270
Computed coot kill	43,349	89,751	74,217
Computed coots killed per hunter	4.3	5.27	5.2
Computed goose hunters	14,253	9,598	6,256
Computed goose kill	24,483	16,019	12,094
Computed goose kill per hunter	1.7	1.67	1.9

It has been suggested that the 1949 figures are for some reason higher than they should be, and that the decreases in 1950 are more apparent than actual. Chart 2 shows that the 1950 computations are not far out of line when compared to 1948 figures, or with 10-year averages. No satisfactory explanation has been offered as to why 1949 figures might be inflated, however. Maybe they aren't.

Woodcock

The 1950 bag of woodcock was not up to the record season of 1949. It was hardly to be expected that the phenomenal success of 1949 would be repeated in 1950. The 1950 bag of 68,500 represented a decrease of about 25 per cent from the previous year. However, it is expected from past experience that the Michigan total will still top that of any other state by a sizeable margin.

The fluctuation in numbers of woodcock from year to year is normal but does not seem to follow any definite pattern. Apparently, losses in the southern wintering grounds play an important part in next year's woodcock production. Variations in migration dates (and possibly routes) produce differences in local occurrences.

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Michigan is cooperating with the U. S. Fish and Wildlife Service in a spring woodcock census study in the northeastern states. Such a survey should give some indication of the fall population hunters may expect.

Cottontail Rabbits

The total computed kill declined 9 per cent; from 1,970,000 in 1949 to 1,797,000 in 1950, and the total computed number of rabbit hunters declined 9 per cent: from 351,600 in 1949 to 318,200 in 1950. Hunter success remained at 5.6 rabbits per rabbit hunter during both years.

There was a notable increase in the kill in Osceola, Clare, Gladwin, Arenac, Iosco, Alcona, and Alpena counties. In Iosco County, the kill jumped over 100 per cent from 1949 to 1950. In that same area, Midland and Isabella counties produced over 100 per cent more rabbits in 1950 than in the previous year.

The southwestern counties--usually our best rabbit area--produced fewer rabbits this year as well as a lower hunter success ratio.

The eastern portion of the old "lake bed" soils area--Lenawee, Monroe, Wayne, Oakland, Macomb, St. Clair, and Sanilac counties produced fewer rabbits but the hunter success in terms of rabbits per rabbit hunter increased or remained constant compared to 1949. The number of computed rabbit hunters declined in this area.

The Rose Lake Wildlife Experiment Station rabbit season was similar in most respects to that of most of the southern part of the lower peninsula. On the station the kill declined 6 per cent from 1949 while the hunting pressure declined 9 per cent from the previous year.

At the Swan Creek Wildlife Experiment Station hunting pressure dropped 18 per cent as indicated by a reduction in the number of permits issued. However, the cottontail rabbit take was approximately the same as in 1949 (23 in 1949 and 26 in 1950). Hunter success increased markedly in 1950 (2.7 hours of hunting per rabbit in 1950, 6.3 hours of hunting per rabbit in 1949). Trapping results on the station area show that rabbit numbers have been increasing.

Snowshoe Hares

The snowshoe hare kill declined 32 per cent from 1949 to 1950; 69,500 snowshoe hare hunters took 336,000 hares in 1950, compared to a kill of 495,500 by 86,900 hunters in 1949. The decline in the take was accompanied by a 20 per cent drop in the computed number of hare hunters and a 16 per cent drop in hunter success measured in numbers of hares killed per hare hunter.

Only two counties (Emmet and Antrim) showed an increase in hare kill over 1949 while four counties (Alger, Delta, Leelanau, and Kalkaska) recorded an approximately similar take both years. The remaining counties showed a definite decline in the kill. Hunter success declined in most counties. Only Gogebic, Delta, Schoolcraft, Emmet, Oceana, Kent, Leelanau, Alpena, and Arenac counties showed an increase for annual hunter success in 1950 as compared to 1949. Kill records indicate that we should expect the peak in the snowshoe hare cycle to fall between 1949 and 1952. It may be that the 1949 season was the crest and that the decline will occur during the next few years. However, recent reports from the field indicate that snowshoe numbers are high and that it would be advisable to increase the length of the season in Zone 2 in order to harvest the annual surplus.

It has been found that cyclic game species are not adversely affected by hunting pressure even during "lows," and that continued liberal open seasons do not affect the rate of recovery nor minimize the following crest. The Game Division has recommended and believes that a more liberal season in Zone 2 is warranted.

Woodchucks

The 1950 woodchuck kill of 6,400 was 26 per cent below that of 1949. Since 1942, computed kill figures have shown the average take to be about 8,900 woodchucks annually. Hunting pressure over the state as a whole dropped 21 per cent, compared to 1949.

Upper Peninsula woodchuck hunter numbers dropped 24 per cent; however, the kill for the zone declined only 20 per cent.

Zone 2 hunters reporting on woodchucks killed showed an increase of 29 per cent and the kill increased 36 per cent.

In Zone 3--usually the heaviest woodchuck producing area--29 per cent fewer woodchuck hunters took 40 per cent fewer 'chucks compared to 1949.

The unusually severe November weather may have caused early hibernation in Zone 3, hence, a decrease in the 1950 kill.

Fox Squirrels

Fox squirrel hunters enjoyed about the same success in terms of fox squirrels taken per squirrel hunter in 1950 as in 1949.

The computed number of fox squirrels dropped 9 per cent in 1950 (177,700 in 1949 to 161,500 in 1950). The state-wide fox squirrel killed dropped a corresponding 9 per cent (600,600 in 1949 to 569,200 in 1950).

The most notable factor of the season was the 40 per cent drop in the Zone 2 kill. Although it was accompanied by a 28 per cent drop in hunting pressure, the individual success dropped 20 per cent.

Repeated late spring frosts in the northern part of the Lower Peninsula have resulted in a mast shortage for two years. The resulting food shortages are probably reflected in the decreased kill.

In Zone 3--the heaviest fox squirrel producing area--hunter success improved slightly. Squirrel hunters in this area declined 7 per cent, while the kill was only 5 per cent below the 1949 level.

Recent reports indicate that fox squirrel numbers continue good through most of Zone 3.

A COMPARISON OF THE 1949 AND 1950 MICHIGAN FOX SQUIRREL KILL

	Computed Fox Squirrel Hunters			Computed Fox Squirrel Kill			Hunter Success Fox Squirrel taken per fox squirrel hunter		
	1949	1950	Change	1949	1950	Change	1949	1950	Change
Zone 2	19,300	13,800	-28%	69,100	41,200	-40%	3.6	3.0	-20%
Zone 3	158,400	147,700	-7%	600,600	569,200	-5%	3.8	3.9	+2%
Total State	177,700	161,500	-9%	669,700	610,400	-9%	3.8	3.8	0%

Gray Squirrels

A COMPARISON OF THE 1949 & 1950 MICHIGAN GRAY SQUIRREL KILL

	Computed Gray Squirrel Hunters			Computed Gray Squirrel Kill			Hunter Success Gray Squirrel taken per gray squirrel hunter		
	1949	1950	Per cent Change	1949	1950	Per cent Change	1949	1950	Per cent Change
Zone 2	6,600	4,700	-29 $\frac{1}{2}$	19,400	11,100	-43 $\frac{1}{2}$	2.9	2.4	-17 $\frac{1}{2}$
Zone 3	18,900	15,100	-20 $\frac{1}{2}$	49,600	40,600	-18 $\frac{1}{2}$	2.6	2.7	+ 4 $\frac{1}{2}$
Total State	25,500	19,800	-22 $\frac{1}{2}$	67,000	51,800	-25 $\frac{1}{2}$	2.7	2.6	- 4 $\frac{1}{2}$

Delta County figures are not included in this table.

The 1950 Zone 2 gray squirrel take was 40 per cent that of 1949. Repeated late spring frosts in this area resulted in a mast shortage in 1949 and 1950. The resulting food shortages are probably reflected in the decreased kill.

In Zone 3 gray squirrel hunters enjoyed a slightly better individual success in 1950 than in 1949.

At the present time, gray squirrel numbers are generally considered to be slightly below normal in the northern part of Region 3 and throughout most of Region 2 due to the recent food shortages.

Raccoons

Despite indications from reports of field men, highway kills, general observations, and opinions of interested sportsmen that raccoons were at least as plentiful in 1950 as for several preceding years, the 1950 computed hunter kill dropped 12 per cent from 1949. The take remained the same in the upper peninsula, dropped about 16 per cent in Zone 2 and not quite 12 per cent in Zone 3.

Hunter success went up a bit in the upper peninsula, remained the same (2.3 raccoons per hunter) in Zone 2, and went down from 4.7 to 4.2 in Zone 3. Zone 3 is the important raccoon range.

Fewer raccoons were reported trapped in 1950 than in any year since 1942. Only 6,669 were taken compared to a previous 10-year computed average kill by trappers of 10,041. The best year during this period was 1943 with 15,594 animals trapped. There was a drop from 13,333 in 1948 to 8,347 in 1949 or 45 per cent. The 1950 take was 6,669 --a decrease from 1949 of 20 per cent.

With the prices of raccoon pelts up about twice over those prevailing for several years, trappers were welcoming raccoon catches more than for some time past.

The percentage of predatory animal damage complaints in which raccoons were involved remained practically the same as in 1949 (52 per cent as against 53 in 1949). The number of raccoon complaints dropped from 262 to 170.

In both 1949 and 1950 cold temperatures and snow caused early denning and

little activity on the part of raccoons during most of the trapping season in the important raccoon range of Region III.

In 1950 the weather during the hunting season probably cut the effective hunting period to about the first 10 days or two weeks. There was little activity on the part of raccoons or hunters after the snow storms and cold beginning November 25. With the very similar weather situation which occurred in 1949, if raccoon numbers were about the same it seems there should have been no significant drop in kill in 1950 because of bad weather.

In some instances our information on numbers of a species lags behind the actual situation. It is entirely possible (but we have no evidence) that disease or unknown causes had produced a decline in raccoon numbers by the time of the 1950 hunting season.

Opossums

In the Game Division memorandum to the Director in the spring of 1950 it was stated that in view of the rather mild winter experienced in 1949-50, it would not be surprising if the kill in 1950 showed another increase. The computed opossum statistics show an increase in the hunter kill (9 per cent), but a drop in the take by trappers (26 per cent) put the overall kill only 3 per cent above that in 1949.

The 1950 computed take by hunters was 41,217 as against 37,741 in 1949. It was double the kill of 1948. The number of hunters taking opossums went up from 12,661 to 15,761 so that the kill per hunter went down-- from 3.0 to 2.6.

Trappers took 6,169 as against 8,289 in 1949. Trapper numbers dropped off 17 per cent last fall.

For a species that is unprotected and so little sought after as the opossum it seems that the total kill rather than the kill per hunter is more significant. Opossum hides were still worth no more than 50¢ each.

The weather was not favorable for a high take of opossums by trappers.

Mink

The 1950 computed mink kill by hunters was 6,000, considerably below the average annual take of 10,000. The number of mink hunters dropped 26 per cent with a 24 per cent drop in the take compared to 1949.

Thirty-three per cent fewer upper peninsula hunters took 56 per cent fewer mink and Zone 2 duplicated this with 36 per cent fewer hunters and 57 per cent fewer animals taken.

Individual success of Zone 3 hunters was better than last year with 24 per cent fewer hunters taking only 15 per cent fewer mink. Generally, the number of mink taken by hunters seems to fluctuate directly with the number of persons hunting them.

The 12,000 mink taken by mink trappers was the lowest on record and there is a demand from some persons and groups to close the season on these animals. The take has dropped steadily from a high of 38,400 in 1944.

In the upper peninsula, 1 per cent fewer trappers took 5 per cent fewer mink than in 1949. The situation was about the same in the lower peninsula except that the decline in both number of trappers and take was pro-

portionately larger. In Zones 2 and 3, trapping pressure declined 9 and 28 per cent respectively while the take in these zones dropped a corresponding 10 and 33 per cent. Over the state as a whole, 18 per cent fewer trappers took 20 per cent fewer animals.

The 1950 prices for the best mink pelts were \$5 to \$10 above those of 1949. Large pelts brought from \$25 to \$30 after the past season.

Muskrats

The 1950 muskrat take declined 25 per cent, compared to 1949.

While the upper peninsula take usually fluctuates from year to year directly with the larger Zone 3 kill, it did not do so in 1950, according to computed kill figures. Computations based on trappers' report cards show a 10 per cent increase in trapping pressure above the Straits and a 37 per cent increase in the muskrat take. Zone 2 figures show a 2 per cent increase in trapping pressure and a 3 per cent increase in the take. In Zone 3 where 75 per cent of the take normally occurs, trapping pressure dropped 22 per cent, while the kill declined 33 per cent. Water and ice conditions throughout most of Zone 3 made trapping difficult and trappers were generally disgusted. The decrease in the Zone 3 take probably did not accurately reflect muskrat numbers in this area.

District Game Supervisors in the upper peninsula, reporting immediately after the close of the season, believed the take to be somewhat below normal. Trappers and fur buyers were generally of the opinion that the adverse weather during the early part of the season greatly curtailed trapping activity. Warmer weather toward the end of the season, however, may have upped the take considerably.

It is believed that the computed kill figures for muskrats in the upper peninsula are generally a little higher than the actual take.

Zone 3 muskrat pelts brought about \$1.75 on the average, which was 25 per cent above the 1949 price.

Northern rats brought a little lower price than those of Zone 3. The \$1.60 average price for the Upper Peninsula was considerably below pre-season expectations.

Badgers

The badger kill of 229 by hunters was lower than ever recorded since statistics for the species have been kept. It was only half what it was in 1949. Trapper take was also the lowest ever recorded, one-quarter that of 1949. Only 131 were taken compared to 592 in 1949; the previous low had been 297.

The indicated take by county has little significance or reliability. In one year the kill will be distributed among certain counties and the next year among other counties which had none the year before. For example trappers showed a computed take of 216 in Huron County in 1949. They reported none in that county for 1950.

The total state kill has varied with enough regularity to indicate somewhat of a trend in population changes. The total kill was 500 or less prior to 1943 when it jumped to 1500. In 1944 it went up to 2,169. There was a gradual decline for four years with a take of 767 in 1948. The 1949 kill was up again to 1,025. The 1950 low figure of 360 is at wide variance from the expected trend but its significance is not known.

It seems likely that badgers are not so plentiful as they were several years ago when an estimated 2,169 were taken by hunting and trapping in 1944. The 1950 kill is next lowest to that of 1942 when only 303 were reported.

Weasels

The computed kill of 6,383 weasels by small game hunters was the lowest in 9 years. The number has fluctuated up and down from year to year with no regularity, often doubling or halving from one year to the next. There seems to be no established trend. This holds true for trapping as well. Trappers took only an estimated 9,559 which was fewer than ever before. In 1949 they had taken almost 17,000. Pelt prices ranged from about \$1.50 to \$1.75, about the same as the year before.

Skunks

The computed kill of 8,591 skunks by hunters in 1950 represented a drop of 27 per cent from the 1949 figure. The number of hunters who took skunks dropped 26 per cent. The kill per hunter remained the same--1.8.

The kill in the upper peninsula remained the same as in 1949. It dropped about 800 in Zone 2 and about 2,400 in Zone 3.

Despite its drop from 1949 the reported kill by hunters was still greater than in 1947 and 1948. The trapping kill was the lowest since records have been kept--only 1,692. The previous low take was 5,584 in 1948. Both the number of trappers and their take dropped considerably from 1949 to 1950, the trappers 57 per cent and the take 70 per cent.

Skunks appear still to be nowhere nearly as plentiful as they were before the die-off due to disease which occurred in 1941.

Red Fox

The computed fox kill declined 12 per cent from 27,588 in 1949 to 24,264 in 1950. While this decline in the computed kill agrees with a 14 per cent decline in the bounty take from 1949 to 1950, there are complicating factors which point to the possibility that the coinciding downward trends are a matter of chance.

The computed trapping kill decreased 27.7 per cent and the bounty figures show a 17.7 per cent decline in trapping take. The computed hunting take, however, increased 5.3 per cent, while the bounty figures show a 16.0 per cent decrease in the hunting kill. The decline in the computed trapping take was great enough to compensate for the increase shown by the computed hunting kill and thus the total computed kill declined in close agreement with the bounty figures.

The weather conditions during the past winter and the different months covered by the computed and bounty figures may be responsible for the discrepancy in the hunting figures. The bounty figures cover the calendar year of 1950. The period covered by the computed figures is not definitely known, but 90 per cent of the hunters' report cards came into the Lansing office during January, February, and March. Presumably then, nearly 90 per cent of hunters reporting on foxes could have killed foxes after December 1950, a period not covered by the 1950 bounty figures. As January and half of February had favorable weather for fox hunting, this late reporting of foxes may have raised the computed fox hunting kill.

Since weather conducive to fox hunting is presumably not favorable for trapping we assume that during the first months of 1951, few foxes were trapped.

It appears that the fox population declined about 15 per cent during the past year, and the increase shown in the hunting take was the result of favorable fox hunting conditions, not an increased population.

Coyotes

The computed coyote kill by hunting and trapping was 3,116 animals. This figure is not significantly at odds with the bounty total of 3,230 coyotes. However, the trend in the computed kill varied from the bounty. The computed figures declined from 3,729, while the bounty figures rose from 3,130. The increase in the bounty take was caused largely by favorable tracking conditions during the denning season. The catch of coyote pups may not be evident in the computed figures hence the discrepancy in direction of trends.

The bounty figures present definite rather than computed figures for coyote take and it seems best to use them for an index of population trends.

Wolves

The computed wolf kill by hunting and trapping combined was 137 animals. The trapping results indicated 50 animals taken, all in the upper peninsula. Hunting accounted for the balance, 87 animals. A figure of 43 was computed for the lower peninsula. These may have been the result of hunters shooting coyotes and reporting them as wolves.

In view of the large discrepancy between the computed wolf figure and the absolute bounty records, it is apparent that the sampling of hunters and trappers of wolves through report cards does not permit computation of a figure of real significance.

The bounty records show 28 wolves taken in 1950.

Bobcats

In 1950 the computed kill of bobcats (1,104) by small game hunters showed a decline from 1949 of 14 per cent. In 1949 it had gained over 1948 by 12 per cent. There was greater change in 1950 in the upper peninsula (23 per cent drop) than in the lower peninsula (8 per cent drop).

Trappers took well over twice as many in 1950 as in 1949--649 compared to 270. Their entire take was in the upper peninsula, not one trapper indicating a catch from below the Straits. This is to be expected since the species is bountied in the upper peninsula only, so there is not so much incentive for trapping elsewhere in the state.

The overall kill by hunters and trappers of 1,752 showed an increase of 13 per cent over 1949. Bounty figures show an increase in 1950 of 41 per cent (642 compared to 454).

Considering the small number involved the computed figures should not be regarded as very significant. They probably do not even indicate population trends.

Bear (by deer hunters)

The computed kill of 1,179 bears (815 in Region I and 364 in Region II) in 1950 amounted to a considerable increase (65 per cent) over the take in 1949. This probably was due mainly to weather in 1950 such that bears remained more active than the year before when they were induced by cold and heavy snows to "den up" early.

The figure for 1950 is not too far different from the preceding 10-year average computed kill of 1,065. The high take during the period from 1940 to 1949, inclusive, was 1,739 in 1947. While the weather was better for bear hunting in 1950 than in 1949, it still was severe enough at times to put substantial numbers of bears in dens, thereby holding the kill below what could have occurred had open weather conditions prevailed the entire season. Bears have been up in numbers since about 1945 and the population is still high.

The computed kill figures are significant mainly for the trends they indicate. The actual kill of bears may be lower than the computed figure. The total number brought down across the Straits by lower peninsula hunters in 1950 was 281. These hunters from below the Straits constitute 61 per cent of the deer hunters hunting in the upper peninsula. If upper peninsula residents had the same average success as these lower peninsula hunters the residents killed 180 bears. The total kill for the upper peninsula figured in such a manner would be 461—281 by lower peninsula hunters and 180 by upper peninsula hunters as compared to the computed upper peninsula total of 815.

Other factors entering in to affect the figure of 461 is that some bears were transported through Wisconsin and, also, perhaps upper peninsula hunters know their upper peninsula hunting territories enough better to raise their kill success above that of the outsiders hunting there. Nevertheless, it seems that the computed figure of 815 is likely higher than actual.