DOCUMENTATION FOR
PROGRESS NOTE
COMPUTER PRINTOUTS

1975

H.A. Raible

Environment Canada Environnement Canada

MEMORANDUM NOTE DE SERVICE

DATE July 15, 19

FROM: Computer Systems Liaison
DE: Canadian Wildlife Service
Ottawa

Our file Notre référence

TO: Mr. Kent Brace
Mr. Darrell Dennis
Mr. Pierre Dupuis
Mr. U. Fischer
Mr. G. Kaiser
Mr. Dan Nieman
Mr. W.R. Whitman ✓

SUBJECT: Species Composition Documentation

Earlier this year we sent you copies of the Progress Note computer listings dealing with the Species Composition data.

In order to make these listings more useful to you, I have attempted to document their contents and the various computations which are applied against the data. I hope I am successful in further clarifying the Progress Note results rather than increasing the confusion surrounding them.

I am particularly concerned that the tables leading up to the calculation of the Distribution Weighting Factor are understood since this seems to be a problem.

If there is any difficulty in comprehending these tables after having studied the documentation, don't hesitate to contact me. Any comments (including constructive criticism) are welcome.

I hope to do the same sort of thing for the first eight tables dealing with the Permit and Harvest data at some future date.

Attached to this memo are two tables showing the breakdown of species vs. area of the 74-75 Species Composition data. You might be interested in comparing these. Keep in mind that the hunting area does not necessarily coincide with the Wing Bee centre. Nevertheless we ended up with more than 600 more parts on file than anticipated from the Hand Tallies.

HAR

H.A. Raible

Encl.

74 - 75 SPECIES SURVEY - PARTS BY HUNTING AREA

(Based on Table 15)

AOU	MARITIMES	QUEBEC	ONTARIO	PRAIRIES	BRITISH COLUMBIA	TOTAL
1290	70	63	32	3	7	175
1300	62	20	27			109
1310	10	83	237	4	5	339
1320	51	803	3,680	5,029	1,354	10,917
1330	1,623	1,088	1,077	4		3,792
1350	7	41	57	472	28	605
1370	44	104	182	301	436	1,067
1390	928	626	551	136	210	2,451
1400	194	654	558	300	12	1,718
1420	2	59	21	273	19	374
1430	94	236	153	675	303	1,461
1440	50	266	1,069		22	1,407
1460		56	145	136	7	344
1470		13	92	89	15	209
1480	53	214	255	6	22	550
1490	61	244	594	216	36	1,151
1500	184	177	690	65	26	1,142
1510	237	302	349	22	28	938
1520	5	21		2	26	54
1530	56	60	468	34	38	656
1540	36	47	42	1		126
1550			1			1
1600	103	53	1			157
1620		1				1
1630	40	66	60			166
1640						
1650	24	114	66	4	3	211
1660	85	135	43		9	272
1670	2	1	28	13		44
DUCKS	4,021	5,547	10,478	7,785	2,606	30,437
1690		81	79	227	3	390
1700				22		22
1710				212	2	214
1720	335	350	259	15		959
1721				282	28	310
1722			1	479	95	575
1730		4				4
1740					3	3
GEESE	335	435	339	1,237	131	2,477
TOTAL	4,356	5,982	10,817	9,022	2,737	32,914

74 - 75 SPECIES SURVEY - PARTS BY WING BEE

(Based on Hand Tallies)

AOU	SACKVILLE	STE FOY	AURORA	SASKATOON	DELTA	TOTAL
1290	74	59	33	4	7	177
1300	61	28	26			115
1310	10	80	228	4	5	327
1320	52	802	3,586	4,761	1,512	10,713
1330	1,636	988	1,074	3		3,701
1350	4	35	60	444	39	582
1370	45	110	201	285	438	1,079
1390	932	615	552	126	212	2,437
1400	204	665	525	287	15	1,696
1420	2	50	21	263	25	361
1430	95	226	161	631	334	1,447
1440	39	261	1,051		22	1,373
1460		50	140	128	12	334
1470		14	99	83	19	215
1480	48	206	244	3	21	522
1490	70	247	588	217	37	1,159
1500	189	153	659	63	29	1,093
1510	242	291	330	21	55	939
1520	4			3		7
1530	56	56	456	32	38	638
1540	24	42	46	1		113
1550			1			1
1600	98	42				140
1630	46	60	65			171
1650	24	106	68	3	3	204
1660	94	128	40		9	271
1670	2		28	6		36
DUCKS	4,055	5,314	10,282	7,368	2,832	29,851
1690		99	78	222	3	402
1700				22		22
1710				212	2	214
1720	334	435	224	662	133	1788
1730		4				4
1740					3	3
GEESE	334	538	302	1,118	141	2,43
TOTAL	4,389	5,852	10,584	8,486	2,973	32,284
(UNKNOWN	22	83				105

74 - 75 SPECIES SURVEY - PARTS BY HUNTING AREA

(Based on Table 15)

AOU	MARITIMES	QUEBEC	ONTARIO	PRAIRIES	BRITISH COLUMBIA	TOTAL
1290	70	63	32	3	7	175
1300	62	20	27			109
1310	10	83	237	4	5	339
1320	51	803	3,680	5,029	1,354	10,917
1330	1,623	1,088	1,077	4		3,792
1350	7	41	57	472	28	605
1370	44	104	182	301	436	1,067
1390	928	626	551	136	210	2,451
1400	194	654	558	300	12	1,718
1420	2	59	21	273	19	374
1430	94	236	153	675	303	1,461
1440	50	266	1,069		22	1,407
1460		56	145	136	7	344
1470		13	92	89	15	209
1480	53	214	255	6	22	550
1490	61	244	594	216	36	1,151
1500	184	177	690	65	26	1,142
1510	237	302	349	22	28	938
1520	5	21		2	26	54
1530	56	60	468	34	38	656
1540	36	47	42	1		126
1550			1			1
1600	103	53	1			157
1620		1				1
1630	40	66	60			166
1640						
1650	24	114	66	4	3	211
1660	85	135	43		9	272
1670	2	1	28	13		44
DUCKS	4,021	5,547	10,478	7,785	2,606	30,437
1690		81	79	227	3	390
1700				22		22
1710				212	2	214
1720	335	350	259	15		959
1721				282	28	310
1722			1	479	95	575
1730		4				4
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74 - 75 SPECIES SURVEY - PARTS BY WING BEE

(Based on Hand Tallies)

AOU	SACKVILLE	STE FOY	AURORA	SASKATOON	DELTA	TOTAL
1290	74	59	33	4	7	177
1300	61	28	26			115
1310	10	80	228	4	5	327
1320	52	802	3,586	4,761	1,512	10,713
1330	1,636	988	1,074	3		3,701
1350	4	35	60	444	39	582
1370	45	110	201	285	438	1,079
1390	932	615	552	126	212	2,437
1400	204	665	525	287	15	1,696
1420	2	50	21	263	25	361
1430	95	226	161	631	334	1,447
1440	39	261	1,051		22	1,373
1460		50	140	128	12	334
1470		14	99	83	19	215
1480	48	206	244	3	21	522
1490	70	247	588	217	37	1,159
1500	189	153	659	63	29	1,093
1510	242	291	330	21	55	939
1520	4			3		7
1530	56	56	456	32	38	638
1540	24	42	46	1		113
1550			1			1
1600	98	42				140
1630	46	60	65			171
1650	24	106	68	3	3	204
1660	94	128	40		9	271
1670	2		28	6		36
DUCKS	4,055	5,314	10,282	7,368	2,832	29,851
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1730		4				4
1740					3	3
GEESE	334	538	302	1,118	141	2,43
TOTAL	4,389	5,852	10,584	8,486	2,973	32,284
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1440	50	266	1,069		22	1,407
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1420	2	50	21	263	25	361
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1440	39	261	1,051		22	1,373
1460		50	140	128	12	334
1470		14	99	83	19	215
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1500	189	153	659	63	29	1,093
1510	242	291	330	21	55	939
1520	4			3		7
1530	56	56	456	32	38	638
1540	24	42	46	1		113
1550			1			1
1600	98	42				140
1630	46	60	65			171
1650	24	106	68	3	3	204
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1670	2		28	6		36
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TOTAL	4,389	5,852	10,584	8,486	2,973	32,284
(UNKNOWN	22	83				105

D-1 SPECIES COMPOSITION DISTRIBUTION WEIGHTING FACTOR CALCULATIONS

- Tables 9 - 14 -

These tables show the intermediate results leading to the calcultion of the Distribution Weighting Factor. All figures are reported by province and zone of kill.

The data are validated, and unacceptable data are excluded from these reports. The allowable AOU #'s are shown in Appendix A. The dates on both the Species and Harvest records must fall within the range of the last Wednesday in August and December 31; of course only valid zones and age/sex codes are permitted. Thus the figures on these tables will not coincide with those from other Species System reports which do not exclude certain Species and invalid dates (many of the envelopes are not dated at all).

A detailed description of each of these tables follows.

TABLE 9. "Rate of Receipt of Wings in the 19xx Species Composition Survey"

This table shows the wing receipts and percentages by period for each zone. The time periods are each a multiple of seven days and the count in each period is at least 5% of the total wing receipts. If there are not enough data to bring the count for any given period up to 5% of the total, that counter is added to the next period progressively until the count is greater than or equal to 5% of the total.

The following diagram illustrates this:

Week	1	2	3	4	5	6	7	8	9	10	11	12
%	3.4	37.8	24.8	9.7	8.2	7.4	3.7	2.4	1.2	0.5	0.6	0.4
Step A		41.2	24.8	9.7	8.2	7.4		6.1				2.7
Step B		41.2	24.8	9.7	8.2	7.4						8.8
Time Periods		1	2	3	4	5						6

The starting date is always the last Wednesday in August and the ending date, December 31.

The period numbers are carried through all the tables in this series (Tables 10-14). By referring to Table 9, then, one can see the precise dates of any given figure on the subsequent tables. Note that these dates differ from Zone to Zone.

The chart on the following page shows the distribution of these periods across Canada. The Zones go across the top of the chart and the dates along the side. The period numbers are located at the "To" date of that period and includes any "blank" weeks immediately preceding.

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	PROVINCE:	01		02	03		04		05		06			07		08			09		10	
	ZONE:	1	2	1	1	2	1	2	1	2	1	2	3	1	2	1	2	3	1	2	1	2
	WEEK ENDING																					
28/08 -	03/09		1														1					
	10/09	1	2												1	1	2	1		1	1	
	17/09	2	3										1		2	2	3	2		2	2	
	24/09	3	4						1	1			2		3	3	4	3	1	3	3	
	01/10	4	5			1	1	1	2	2	1	1	3		4	4	5	4	2	4	4	
	08/10	5		1		2	2	2	3	3	2	2	4	1	5	5	6	5	3	5	5	1
	15/10	6		2	1	3	3	3	4	4	3	3	5	2	6	6	7	6	4	6	6	2
	22/10			3	2	4	4		5	5	4	4	6	3	7	7	8	7	5	7	7	3
	29/10			4	3	5		4		6	5	5		4		8		8	6			4
	05/11						5		6		6										8	
	12/11	7		5			6				7								7			5
	19/11				4	6					8											6
	26/11																					7
	03/12				5	7																8
	10/12				6																	
	17/12																					
	24/12																					
	31/12	8	6	6	7	8	7	5	7	7	9	6	7	5	8	9	9	9	8	8	9	9

RATE OF RECEIPT OF WINGS IN THE 1974 SPECIES COMPOSITION SURVEY

PROVINCE 07 ZONE 01

FROM Y	M	D	TO Y	M	D	RECEIPTS IN PERIOD	PERCENT OF TOTAL	PERIOD NUMBER
74	08	28	74	10	08	207	20.52	1
74	10	09	74	10	15	416	41.23	2
74	10	16	74	10	22	152	15.06	3
74	10	23	74	10	29	113	11.20	4
74	10	30	74	12	31	121	11.99	5
TOTAL						1009	100.00	ALL

PROVINCE 07 ZONE 02

FROM Y	M	D	TO Y	M	D	RECEIPTS IN PERIOD	PERCENT OF TOTAL	PERIOD NUMBER
74	08	28	74	09	10	33	7.88	1
74	09	11	74	09	17	47	11.22	2
74	09	18	74	09	24	22	5.25	3
74	09	25	74	10	01	27	6.44	4
74	10	02	74	10	08	61	14.56	5
74	10	09	74	10	15	97	23.15	6
74	10	16	74	10	22	63	15.04	7
74	10	23	74	12	31	69	16.47	8
TOTAL						419	100.01	ALL

TABLE 10. "Composition of 1974 Wing Recepts by Species, Age, and Sex"

This is a cross-tabulation of species broken down by age and sex vs. time periods with a total for all periods.

COMPOSITION OF 1974 WING RECEIPTS BY SPECIES, AGE AND SEX

PROVINCE 07 ZONE 01

AOU NO.	AGE	SEX	COMPOSITION OF WING RECEIPTS IN EACH TIME PERIOD 1	2	3	4	5	6	7	8	9	SUM OF PERIODS
1310	ALL				1		1					2
	I	U			1		1					2
	I				1		1					2
1320	ALL		99	198	84	85	76					542
	A	M	15	39	13	11	9					87
	A	F	14	24	7	11	10					66
	A	U		1								1
	I	M	32	74	28	22	36					192
	I	F	28	47	31	25	15					146
	I	U		1		6	3					10
	U	F					1					1
	U	U	10	12	5	10	2					39
	A		29	64	20	22	19					154
	I		60	122	59	53	54					348
		M	47	113	41	33	45					279
		F	42	71	38	36	26					213
1330	ALL		1	2			1					4
	A	F	1									1
	I	M		1								1
	I	F		1								1
	I	U					1					1
	A		1									1
	I			2			1					3
		M		1								1
		F	1	1								2

TABLE 11. "Percent Composition of 1974 Wing Receipts by Species, Age and Sex"

This table mirrors Table 10 in percentages rather than actual envelope counts.

PERCENT COMPOSITION OF 1974 WING RECEIPTS BY SPECIES, AGE AND SEX

PROVINCE 07 ZONE 01

AOU NO.	AGE	SEX	PERCENT COMPOSITION OF WING RECEIPTS IN EACH TIME PERIOD 1	2	3	4	5	6	7	8	9	SUM OF PERIODS
1310	ALL				100.00		100.00					100.00
	I	U			100.00		100.00					100.00
	I				100.00		100.00					100.00
1320	ALL		100.00	100.00	100.00	100.00	100.00					100.00
	A	M	15.15	19.70	15.48	12.94	11.84					16.05
	A	F	14.14	12.12	8.33	12.94	13.16					12.18
	A	U		.51								.18
	I	M	32.32	37.37	33.33	25.88	47.37					35.42
	I	F	28.28	23.74	36.90	29.41	19.74					26.94
	I	U		.51		7.06	3.95					1.85
	U	F					1.32					.18
	U	U	10.10	6.06	5.95	11.76	2.63					7.20
	A		29.29	32.32	23.81	25.88	25.00					28.41
	I		60.61	61.62	70.24	62.35	71.05					64.21
		M	47.47	57.07	48.81	38.82	59.21					51.48
		F	42.42	35.86	45.24	42.35	34.21					39.30
1330	ALL		100.00	100.00			100.00					100.00
	A	F	100.00									25.00
	I	M		50.00								25.00
	I	F		50.00								25.00
	I	U					100.00					25.00
	A		100.00									25.00
	I			100.00			100.00					75.00
		M		50.00								25.00
		F	100.00	50.00								50.00

TABLE 12. "Composition of 1974 Wing Receipts by Species"

Table 12 is a summary of the figures for each species shown in Table 10 (the line marked "ALL"). In addition, it gives the total parts received for a given zone in a given time period as well as a total for all periods. Note that this total line shows the same values as appear on Table 9.

COMPOSITION OF 1974 WING RECEIPTS BY SPECIES

PROVINCE 07 ZONE 01

AOU NO.	COMPOSITION OF WING RECEIPTS IN EACH TIME PERIOD 1	2	3	4	5	6	7	8	9	SUM OF PERIODS
1310			1		1					2
1320	99	198	34	85	76					542
1330	1	2			1					4
1350	17	29	9	1	1					57
1370	13	20	6		1					40
1390	8	14	3	3						28
1400	14	20	2							36
1420	8	6	7	1	1					23
1430	9	27	5	4						45
1460	6	17	8	5	2					38
1470	9	10	7	1	1					28
1480			1		1					2
1490	12	37	12	10	31					102
1500	8	19	3	2	1					33
1510		2	1							3
1520			1							1
1530	3	8	1	1	4					17
1650		2								2
1670		5	1							6
TOTAL	207	416	152	113	121					1009

PROVINCE 07 ZONE 02

AOU NO.	COMPOSITION OF WING RECEIPTS IN EACH TIME PERIOD 1	2	3	4	5	6	7	8	9	SUM OF PERIODS
1290	1					1		1		3
1310						1				1
1320	27	35	17	15	35	57	47	51		284
1350		1		1	1		4			7
1370	1	4		3	4	2	2	2		18
1390	1	1	1	1	6	1	1	1		13
1400		1	1	2	4	4	1			13
1420								2		2
1430	2		3	4	1	2		3		15
1460		2			1	4				7
1470	1							1		2
1480					1	1				2
1490					2	8	5	5		20
1500		1			3	13	1			18
1510		1			2	1		2		6
1530		1			1	2	1			5
1540				1						1
1650								1		1
1670							1			1
TOTAL	33	47	22	27	61	97	63	69		419

TABLE 13. "Percent Composition of 1974 Wing Receipts by Species"

This table gives the vertical percentages for the values in Table 12.

PERCENT COMPOSITION OF 1974 WING RECEIPTS BY SPECIES

PROVINCE 07 ZONE 01

AOU NO.	PERCENT COMPOSITION OF WING RECEIPTS IN EACH TIME PERIOD 1	2	3	4	5	6	7	8	9	SUM OF PERIODS
1310			.66		.83					.20
1320	47.83	47.60	55.26	75.22	62.81					53.72
1330	.48	.48			.83					.40
1350	8.21	6.97	5.92	.88	.83					5.65
1370	6.28	4.81	3.95		.83					3.96
1390	3.86	3.37	1.97	2.65						2.78
1400	6.76	4.81	1.32							3.57
1420	3.86	1.44	4.61	.88	.83					2.28
1430	4.35	6.49	3.29	3.54						4.46
1460	2.90	4.09	5.26	4.42	1.65					3.77
1470	4.35	2.40	4.61	.88	.83					2.78
1480			.66		.83					.20
1490	5.80	8.89	7.89	8.85	25.62					10.11
1500	3.86	4.57	1.97	1.77	.83					3.27
1510		.48	.66							.30
1520			.66							.10
1530	1.45	1.92	.66	.88	3.31					1.68
1650		.48								.20
1670		1.20	.66							.59
TOTAL	100.00	100.00	100.00	100.00	100.00					100.00

PROVINCE 07 ZONE 02

AOU NO.	PERCENT COMPOSITION OF WING RECEIPTS IN EACH TIME PERIOD 1	2	3	4	5	6	7	8	9	SUM OF PERIODS
1290	3.03					1.03		1.45		.72
1310						1.03				.24
1320	81.82	74.47	77.27	55.56	57.38	58.76	74.60	73.91		67.78
1350		2.13		3.70	1.64		6.35			1.67
1370	3.03	8.51		11.11	6.56	2.06	3.17	2.90		4.30
1390	3.03	2.13	4.55	3.70	9.84	1.03	1.59	1.45		3.10
1400		2.13	4.55	7.41	6.56	4.12	1.59			3.10
1420								2.90		.48
1430	6.06		13.64	14.81	1.64	2.06		4.35		3.58
1460		4.26			1.64	4.12				1.67
1470	3.03							1.45		.48
1480					1.64	1.03				.48
1490					3.28	8.25	7.94	7.25		4.77
1500		2.13			4.92	13.40	1.59			4.30
1510		2.13			3.28	1.03		2.90		1.43
1530		2.13			1.64	2.06	1.59			1.19
1540				3.70						.24
1650								1.45		.24
1670							1.59			.24
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00		100.00

TABLE 14. "Calculated 1974 Harvest Sample By Species"

This table pulls together the information from the previous tables and combines it with the harvest data to determine the Distribution Weighting Factor for each Species within a given zone.

The Harvest calendar data is tallied by the time period shown on Table 9 for a given zone. This results in a total reported bag for each period for that zone. Note that this figure is not the same as that shown under "Harvest" for Ducks on Table 6 because many hunters report a kill of ducks but don't fill in the calendar accurately (or at all). The reported calendar kill ranges from 60-90% of that reported under "number of ducks killed" averaging about 80% over all zones. This harvest by period from the calendar is shown in the line marked "Harvest" on this table.

The Weighting Factor is a ratio of two species composition percentages, one derived from wing receipts alone and the other derived from an adjusted harvest sample as follows.

By grouping both the Species Composition Survey and the Harvest Survey calendar data in weekly units, we can determine the species composition of the harvest in each week. The total harvest of any given species is the sum of these weekly harvests across the season for that species. The formula for this process is as follows:

$$H_s = \sum_{p=1}^{n} \left(\frac{W_{sp}}{W_p} \times H_p \right)$$

where H_s = harvest for species s (based on Harvest Survey calendar),

W_{sp} = receipt of wings of species s,

W_p = total receipt of wings during period p (all species combined),

(W_{sp} and W_p are shown on Table 12)

and, H_p = harvest during the same period (based on Harvest Survey calendar and shown on Table 14).

The species percentage composition as determined from the wing receipts:

$$P_s = \frac{W_s}{W} \times 100$$

where W_s = total wing receipts for species s,

and W = total wing receipts for all species

(both W_s & W are shown on Table 12).

The species percentage composition as determined from the adjusted harvest:

$$P_h = \frac{H_s}{H} \times 100$$

where H_s = harvest for species s as determined above,

and H = total harvest sample (these are shown in this table).

The Weighting Factor is thus $\frac{P_h}{P_s}$ for a given species in a given zone.

To illustrate this process, in the following pages I have gone through these calculations for Mallards (1320) in Zone 01 of Manitoba (Prov 07). The figures are taken from the sample sheets included with this documentation which are in actuality part of the 74-75 Progress Notes. The symbols are shown on the layout shown in Figure D 1.

74 - 75 PROGRESS NOTES - TABLE 12

COMPOSITION OF 1974 WING RECEIPTS BY SPECIES

AOU No.	1	2 ...	9	SUM OF PERIODS
s_1	W_{sp}			W_{s_1}
s_2				
s_3				
.				
.				
.				
s_n				
TOTAL	W_{p_1}	W_{p_2}		W_z

Figure D 2

74 - 75 PROGRESS NOTES - TABLE 14

CALCULATED 1974 HARVEST SAMPLE BY SPECIES

AOU No.	1	2 ... 9	SUM OF PERIODS	PERCENT OF TOTAL HARVEST	TOTAL HARVEST FOR SPECIES	RATIO NEW %/OLD%
s	H_{sp} p=1	H_{sp} p=2 ... H_{sp} p=9	H_s	P_h	T_s	F_s
TOTAL	H_p		H		T	
HARVEST	K_p		K		E	
HUNTER-DAYS	D_p		D			

Figure D 1

Period Harvest for a given species:

$$H_{sp} = \frac{W_{sp}}{W_p} \times H_p$$

for s = 1320 and period 1,

$$H_{sp} = \frac{99}{207} \times 808 = 386.43$$

Period Harvest Totals adjusted as to species composition:

$$H_s = \sum_{p=1}^{n} H_{sp}$$

$$H_{1320} = (386 + \ldots + 348) = 2002.6$$

Percentage of Harvest by species adjusted by Period Wing Composition:

$$P_h = \frac{H_s}{H} \times 100$$

$$P_{1320} = \frac{2002.6}{3645} \times 100 = 54.94\%$$

Percentage of Wing Composition based on parts:

$$P_s = \frac{W_s}{W} \times 100$$

$$P_{1320} = \frac{542}{1009} \times 100 = 53.72\%$$

Weighting Factor:

$$F_s = \frac{P_h}{P_s}$$

$$F_{1320} = \frac{54.94}{53.72} = 1.023$$

Total Estimated Harvest by Species:

$$T_s = \frac{P_h \times E}{100}$$

$$T_{1320} = \frac{54.941 \times 186,489}{100} = 102,459$$

E is the Estimated Harvest for Ducks in Manitoba, Zone 1, taken from Table 6 of the Harvest part of the Progress Notes.

CALCULATED 1974 HARVEST SAMPLE BY SPECIES

PROVINCE 07 ZONE 01

AOU NO.	1	2	3	4	5	6	7	8	9	SUM OF PERIODS	PERCENT OF TOTAL HARVEST	TOTAL HARVEST FOR SPECIES	RATIO NEW %/OLD %
1310			5		5					9	.25	468	1.265
1320	386	535	383	350	348					2003	54.94	102459	1.023
1330	4	5			5					14	.38	711	.961
1350	66	78	41	4	5					195	5.34	9952	.945
1370	51	54	27		5					137	3.75	6997	.946
1390	31	38	14	12						95	2.61	4866	.940
1400	55	54	9							118	3.23	6030	.906
1420	31	16	32	4	5					88	2.42	4505	1.060
1430	35	73	23	16						147	4.04	7542	.907
1460	23	46	36	21	9					136	3.72	6938	.988
1470	35	27	32	4	5					103	2.82	5259	1.016
1480			5		5					9	.25	468	1.265
1490	47	100	55	41	142					385	10.55	19682	1.044
1500	31	51	14	8	5					109	2.99	5582	.915
1510		5	5							10	.27	510	.920
1520			5							5	.13	233	1.262
1530	12	22	5	4	18					60	1.66	3087	.982
1650		5								5	.15	277	.749
1670		14	5							18	.50	925	.834
TOTAL	808	1125	693	465	554					3645	100.00	186488	
HARVEST	808	1125	693	465	554					3645	100.00	186489	
HUNTER-DAYS	649	681	523	383	595					2831			

D-2 SPECIES COMPOSITION - AGE / SEX RATIOS

- Tables 15-21 -

These tables give the species breakdown by zone for both the species survey parts and the estimated harvest. Some of the tables have been adjusted by the Weighting Factor as calculated in Tables 9-14. The final table in this series shows an Age/Sex ratio for the duck species. A detailed description of each of the tables follows. The usefulness of tables 16, 18, and 20 is questionable and it is likely that these will be dropped in the future.

Table 15. "Estimated Harvest of Duck Species by AOU No. and Area of Hunt"

Table 15 shows the parts breakdown for duck species with percentages by hunting zone and province. The estimated duck harvest as shown on Table 6 is prorated according to parts percentages to give the estimated harvest by species on this table.

This is computed as follows:

$$H_s = \frac{W_s}{W} \times H$$

where H_s = estimated harvest for species s,

W_s = wings submitted for species s,

W = total wings for a given zone or province,

H = total estimated duck harvest for a given zone or province.

For example, in the sample report included in this documentation:

where s = 1320 (Mallards)

and the zone is 01 of Manitoba:

$$H_s = \frac{555}{1034} \times 186,489 = 100,098$$

ESTIMATED HARVEST OF DUCK SPECIES BY AOU NO. AND AREA OF HUNT

MANITOBA

	ZONE 1				ZONE 2				ZONE 3				PROVINCE		
SPECIE	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT
1290					3	447	.708						3	447	.206
1300															
1310	2	360	.193		1	149	.236						3	509	.206
1320	555	100,098	53.675		289	43,010	68.160						844	143,108	57.888
1330	4	722	.387										4	722	.274
1350	60	10,822	5.803		7	1,042	1.651						67	11,864	4.595
1370	41	7,394	3.965		18	2,679	4.245						59	10,073	4.047
1390	30	5,410	2.901		13	1,935	3.066						43	7,345	2.949
1400	36	6,494	3.482		13	1,935	3.066						49	8,429	3.361
1420	23	4,148	2.224		2	298	.472						25	4,446	1.715
1430	47	8,476	4.545		15	2,233	3.538						62	10,709	4.252
1440															
1460	40	7,213	3.868		7	1,042	1.651						47	8,255	3.224
1470	28	5,050	2.708		2	298	.472						30	5,348	2.058
1480	2	360	.193		2	298	.472						4	658	.274
1490	102	18,397	9.865		20	2,976	4.717						122	21,373	8.368
1500	35	6,313	3.385		18	2,679	4.245						53	8,992	3.635
1510	3	541	.290		6	893	1.415						9	1,434	.617
1520	1	181	.097										1	181	.069
1530	17	3,066	1.644		5	744	1.179						22	3,810	1.509
1540					1	149	.236						1	149	.069
1550															
1570															
1580															
1600															
1620															
1630															
1640															
1650	2	360	.193		1	149	.236						3	509	.206
1660															
1670	6	1,082	.580		1	149	.236						7	1,231	.480
TOTAL	1,034	186,489			424	63,101							1,458	249,590	

TABLE 16. "Estimated Harvest of Duck Species By AOU No. and Hunting Region"

This is a summary of Table 15 grouping the provinces into Maritimes, (Nfld, P.E.I., N.S. & N.B.), Central (Ont. & Quebec) and Prairies (Man., Sask., Alta.) hunting regions. The total for Canada includes these regions plus British Columbia, Northwest Territories, and the Yukon.

ESTIMATED HARVEST OF DUCK SPECIES BY AOU NO. AND HUNTING REGION

TOTAL INCLUDES B.C. YUKON AND NWT

	MARITIMES				CENTRAL				PRAIRIES				TOTAL		
SPECIE	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT
1290	70	9,676	1.741		95	9,012	.593		3	447	.039		175	19,716	.575
1300	62	7,559	1.542		47	3,961	.293						109	11,520	.358
1310	10	407	.249		320	27,577	1.997		4	737	.051		339	29,131	1.114
1320	51	2,565	1.268		4,483	363,479	27.975		5,029	1,279,909	64.599		10,917	1,755,783	35.868
1330	1,623	110,750	40.363		2,165	196,018	13.510		4	722	.051		3,792	307,490	12.459
1350	7	378	.174		98	8,440	.612		472	121,227	6.063		605	132,331	1.988
1370	44	1,966	1.094		286	24,500	1.785		301	75,145	3.866		1,067	137,082	3.506
1390	928	73,998	23.079		1,177	106,451	7.345		136	33,006	1.747		2,451	230,346	8.053
1400	194	8,678	4.825		1,212	110,889	7.563		300	74,949	3.854		1,718	195,441	5.644
1420	2	115	.050		80	7,691	.499		273	70,313	3.507		374	79,645	1.229
1430	94	6,513	2.338		389	35,925	2.427		675	178,168	8.671		1,461	245,439	4.800
1440	50	1,856	1.243		1,335	111,236	8.331						1,407	114,906	4.623
1460					201	16,253	1.254		136	32,082	1.747		344	48,878	1.130
1470					105	7,783	.655		89	20,412	1.143		209	29,382	.687
1480	53	5,024	1.318		469	41,622	2.927		6	1,120	.077		550	49,509	1.807
1490	61	6,143	1.517		838	72,018	5.229		216	46,431	2.775		1,151	127,414	3.782
1500	184	13,498	4.576		867	73,706	5.410		65	12,268	.835		1,142	101,509	3.752
1510	237	23,113	5.894		651	58,834	4.062		22	5,213	.283		938	89,325	3.082
1520	5	1,071	.124		21	2,058	.131		2	409	.026		54	5,536	.177
1530	56	3,716	1.393		528	42,164	3.295		34	7,256	.437		656	56,073	2.155
1540	36	2,128	.895		89	8,159	.555		1	149	.013		126	10,436	.414
1550					1	80	.006						1	80	.003
1570															
1580															
1600	103	7,600	2.562		54	5,341	.337						157	12,941	.516
1620					1	102	.006						1	102	.003
1630	40	4,931	.995		126	11,567	.786						166	16,498	.545
1640															
1650	24	1,665	.597		180	17,009	1.123		4	780	.051		211	19,690	.693
1660	85	5,942	2.114		178	17,280	1.111						272	23,932	.894
1670	2	162	.050		29	2,061	.181		13	2,791	.167		44	5,014	.145
TOTAL	4,021	299,459			16,025	1,381,225			7,785	1,963,523			30,437	3,855,152	

TABLE 17. "Estimated Harvest of Duck Species by AOU No. and Area of Hunt (adjusted by Distribution Ratio)"

Table 17 is analogous to Table 15; however, the parts count and the estimated harvest have been adjusted by the weighting factor as calculated in Table 14 and shown under the title "DISTR/FACTR" on this table. Thus we have

W_s' = weighted wing count for species s,

H_s' = weighted estimated harvest for species s,

and P_s' = percentage of species s based on adusted W_s'. You can see the effect of this on the sample report:

$$W_s' = 555 \times 1.0227 = 567.6$$

$$P_s' = \frac{567.6}{1034} = 54.893\%$$

and $H_s' = 186,489 \times 54893\% = 102,369$

ESTIMATED HARVEST OF DUCK SPECIES BY AOU NO. AND AREA OF HUNT (ADJUSTED BY DISTRIBUTION RATIO)

MANITOBA

	ZONE 1				ZONE 2				ZONE 3				PROVINCE		
SPECIE	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT
1290					2	334	.530	.7490					2	334	.137
1300															
1310	3	455	.244	1.2647	1	111	.176	.7449					4	566	.274
1320	568	102,369	54.893	1.0227	288	42,794	67.819	.9950					856	145,163	58.711
1330	4	694	.372	.9612									4	694	.274
1350	57	10,223	5.482	.9446	7	1,036	1.642	.9948					64	11,259	4.390
1370	39	6,997	3.752	.9464	20	3,026	4.796	1.1298					59	10,023	4.047
1390	28	5,087	2.728	.9402	15	2,297	3.640	1.1873					43	7,384	2.949
1400	33	5,884	3.155	.9062	16	2,338	3.705	1.2083					49	8,222	3.361
1420	24	4,396	2.357	1.0598	1	171	.271	.5745					25	4,567	1.715
1430	43	7,685	4.121	.9067	21	3,103	4.918	1.3901					64	10,788	4.390
1440															
1460	39	7,124	3.820	.9877	7	1,004	1.591	.9639					46	8,128	3.155
1470	28	5,132	2.752	1.0161	2	223	.354	.7510					30	5,355	2.058
1480	3	455	.244	1.2647	2	284	.450	.9537					5	739	.343
1490	106	19,207	10.299	1.0440	14	2,150	3.408	.7224					120	21,357	8.230
1500	32	5,777	3.098	.9151	15	2,252	3.569	.8407					47	8,029	3.224
1510	3	498	.267	.9197	6	822	1.302	.9202					9	1,320	.617
1520	1	228	.122	1.2620									1	228	.069
1530	17	3,012	1.615	.9824	5	687	1.088	.9226					22	3,699	1.509
1540					2	278	.440	1.8646					2	278	.137
1550															
1570															
1580															
1600															
1620															
1630															
1640															
1650	1	269	.144	.7486	1	86	.136	.5745					2	355	.137
1660															
1670	5	903	.484	.8341	1	98	.155	.6584					6	1,001	.412
TOTAL	1,034	186,489		1.0000	424	63,101		1.0000					1,458	249,590	

TABLE 18. "Estimated Harvest of Duck Species by AOU No. and Hunting Region (adjusted by Distribution Ratio

This table is analogous to Table 16 except that it is a summary of Table 17 rather than Table 15.

ESTIMATED HARVEST OF DUCK SPECIES BY AOU NO. AND HUNTING REGION (ADJUSTED BY DISTRIBUTION RATIO)

TOTAL INCLUDES B.C. YUKON AND NWT

	MARITIMES				CENTRAL				PRAIRIES				TOTAL		
SPECIE	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT
1290	91	10,121	2.263		135	12,856	.842		2	334	.026		235	23,905	.772
1300	95	12,920	2.363		65	5,542	.406						160	18,462	.526
1310	11	451	.274		341	29,310	2.128		5	833	.064		360	30,854	1.183
1320	48	2,229	1.194		4,099	332,305	25.579		5,353	1,365,185	68.760		10,845	1,808,855	35.631
1330	1,653	114,006	41.109		2,153	194,615	13.435		4	694	.051		3,810	309,315	12.518
1350	5	282	.124		87	7,463	.543		401	103,424	5.151		527	113,885	1.731
1370	36	1,575	.895		249	21,350	1.554		271	67,187	3.481		998	126,058	3.279
1390	761	57,531	18.926		1,031	93,512	6.434		121	28,809	1.554		2,125	196,875	6.982
1400	145	6,184	3.606		832	76,210	5.192		208	51,334	2.672		1,194	134,412	3.923
1420	2	135	.050		68	6,625	.424		227	58,091	2.916		315	66,310	1.035
1430	75	4,682	1.865		351	32,151	2.190		626	163,674	8.041		1,362	225,898	4.475
1440	46	1,742	1.144		1,091	91,131	6.808						1,155	94,315	3.795
1460					239	19,024	1.491		127	29,409	1.631		373	49,011	1.225
1470					164	12,175	1.023		81	18,223	1.040		261	31,728	.858
1480	62	5,669	1.542		607	53,931	3.786		9	1,475	.116		700	62,830	2.300
1490	74	7,568	1.840		1,056	90,962	6.590		231	50,219	2.967		1,397	151,613	4.590
1500	150	9,621	3.730		884	75,254	5.516		57	10,981	.732		1,118	97,950	3.673
1510	348	30,396	8.655		956	86,605	5.966		23	5,244	.295		1,355	124,379	4.452
1520	6	906	.149		33	3,257	.206		1	293	.013		65	6,390	.214
1530	84	5,491	2.089		770	61,592	4.805		32	6,337	.411		921	76,118	3.026
1540	73	4,757	1.815		157	14,450	.980		2	278	.026		232	19,485	.762
1550					1	89	.006						1	89	.003
1570															
1580															
1600	123	11,164	3.059		48	4,803	.300						171	15,967	.562
1620					2	185	.012						2	185	.007
1630	52	5,733	1.293		143	13,235	.892						195	18,968	.641
1640															
1650	29	2,037	.721		218	20,635	1.360		3	726	.039		254	23,712	.835
1660	80	6,019	1.990		181	17,644	1.129						268	24,220	.881
1670	3	228	.075		40	2,809	.250		11	2,083	.141		54	5,120	.177
TOTAL	4,021	299,459			16,025	1,381,225			7,785	1,963,523			30,437	3,855,152	

TABLE 19. "Estimated Harvest of Goose Species by AOU No. and Area of Hunt"

Table 19 gives the parts breakdown for goose species with percentages by hunting zone and province. The estimated goose harvest from Table 6 is prorated according to parts percentages to give the estimated harvest by species. Note that the estimated goose harvest is the sum of the estimated harvests for Canadas and Others.

The computations are the same as those shown for Table 15.

ESTIMATED HARVEST OF GOOSE SPECIES BY AOU NO. AND AREA OF HUNT

MANITOBA

	ZONE 1				ZONE 2				ZONE 3				PROVINCE		
SPECIE	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT
1690	144	22,216	32.727		10	2,042	9.901						154	24,260	28.466
1700	4	617	.909										4	617	.739
1710	6	926	1.364										6	926	1.109
1720					12	2,451	11.881						12	2,451	2.218
1721	101	15,584	22.955		10	2,042	9.901						111	17,626	20.518
1722	185	28,544	42.045		69	14,092	68.317						254	42,636	46.950
1730															
1740															
TOTAL	440	67,890			101	20,627							541	88,517	

TABLE 20. "Estimated Harvest of Goose Species by AOU No. and Hunting Region"

This table summarizes the species parts and estimated harvest by provincial groupings as described for Table 16.

ESTIMATED HARVEST OF GOOSE SPECIES BY AOU NO. AND HUNTING REGION

TOTAL INCLUDES B.C. YUKON AND NWT

	MARITIMES				CENTRAL				PRAIRIES				TOTAL		
SPECIE	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT	DISTR FACTR	SAMPLE	EST-HARV	PCT
1690					160	20,949	20.672		227	44,734	18.351		390	66,072	15.745
1700									22	5,105	1.778		22	5,105	.888
1710									212	51,600	17.138		214	51,799	8.639
1720	335				609	79,838	78.682		15	3,410	1.213		959	83,248	38.716
1721									282	59,693	22.797		310	62,167	12.515
1722					1	140	.129		479	108,189	38.723		575	116,445	23.214
1730					4	500	.517						4	500	.161
1740													3	389	.121
TOTAL	335	27,778			774	101,427			1,237	272,733			2,477	413,504	

TABLE 21. "Age / Sex Ratios for Ducks by Area of Hunt within AOU"

Table 21 shows the parts broken down by Age and Sex and where the total parts is 20 or more the Age/Sex ratio is computed. The sequence is by Zone/Province of hunt within AOU No. The common name of the species is shown in the heading.

We hope to print a similar table for goose species in the future.

AGE/SEX RATIOS FOR DUCKS BY AREA OF HUNT WITHIN AOU

MALLARD

		AGE RATIO: IMMATURES PR ADULTS				ADULT SEX RATIO: MALES PR FEMLS				IMMATURES SEX RATIO: MALES PR FEMLS			
		SAMPLED	IMMTRS	ADULTS	RATIO	SAMPLED	MALES	FEMLS	RATIO	SAMPLED	MALES	FEMLS	RATIO
NFLD	1	1	1							1	1		
	P	1	1							1	1		
PEI	1	3	1	2		2	1	1		1		1	
	P	3	1	2		2	1	1		1		1	
NS	1	3	2	1		1		1		2		2	
	2	8	5	3		3	2	1		5	4	1	
	P	11	7	4		4	2	2		7	4	3	
NB	1	29	25	4	6.250	4	2	2		24	9	15	.600
	2	7	7							7	3	4	
	P	36	32	4	8.000	4	2	2		31	12	19	.632
QUE	1	710	603	107	5.636	106	50	56	.893	591	308	283	1.088
	2	73	65	8	8.125	8	4	4		64	35	29	1.207
	P	783	668	115	5.809	114	54	60	.900	655	343	312	1.099
ONT	1	1,277	945	332	2.846	330	158	172	.919	922	487	435	1.120
	2	1,907	1,596	311	5.132	304	118	186	.634	1,548	804	744	1.081
	3	320	284	36	7.889	36	10	26	.385	279	142	137	1.036
	P	3,504	2,825	679	4.161	670	286	384	.745	2,749	1,433	1,316	1.089
MAN	1	514	359	155	2.316	154	88	66	1.333	348	198	150	1.320
	2	278	227	51	4.451	50	35	15	2.333	223	137	86	1.593
	P	792	586	206	2.845	204	123	81	1.519	571	335	236	1.419
SASK	1	708	449	259	1.734	257	203	54	3.759	447	257	190	1.353
	2	526	430	96	4.479	96	60	36	1.667	424	235	189	1.243
	3	653	480	173	2.775	173	131	42	3.119	475	267	208	1.284
	P	1,887	1,359	528	2.574	526	394	132	2.985	1,346	759	587	1.293
ALTA	1	809	628	181	3.470	181	133	48	2.771	621	370	251	1.474
	2	1,281	1,029	252	4.083	252	155	97	1.598	1,020	575	445	1.292
	P	2,090	1,657	433	3.827	433	288	145	1.986	1,641	945	696	1.358

Appendix A.

SPECIES INCLUDED IN TABLES 9-14

SPECIES	AOU#
common merganser	1290
red-breasted merganser	1300
hooded merganser	1310
mallard	1320
black duck	1330
gadwall	1350
widgeon	1370
green-winged teal	1390
blue-winged teal	1400
schoveler	1420
pintail	1430
wood duck	1440
red head	1460
canvas back	1470
greater scaup	1480
lesser scaup	1490
ring necked duck	1500
common golden eye	1510
barrows golden eye	1520
buffle head	1530
oldsquaw	1540
harlequin duck	1550
stellers eider	1570
spectacled eider	1580
common eider	1600
king eider	1620
common scoter	1630
velvet scoter	1640
white-winged scoter	1650
surf scoter	1660
ruddy duck	1670