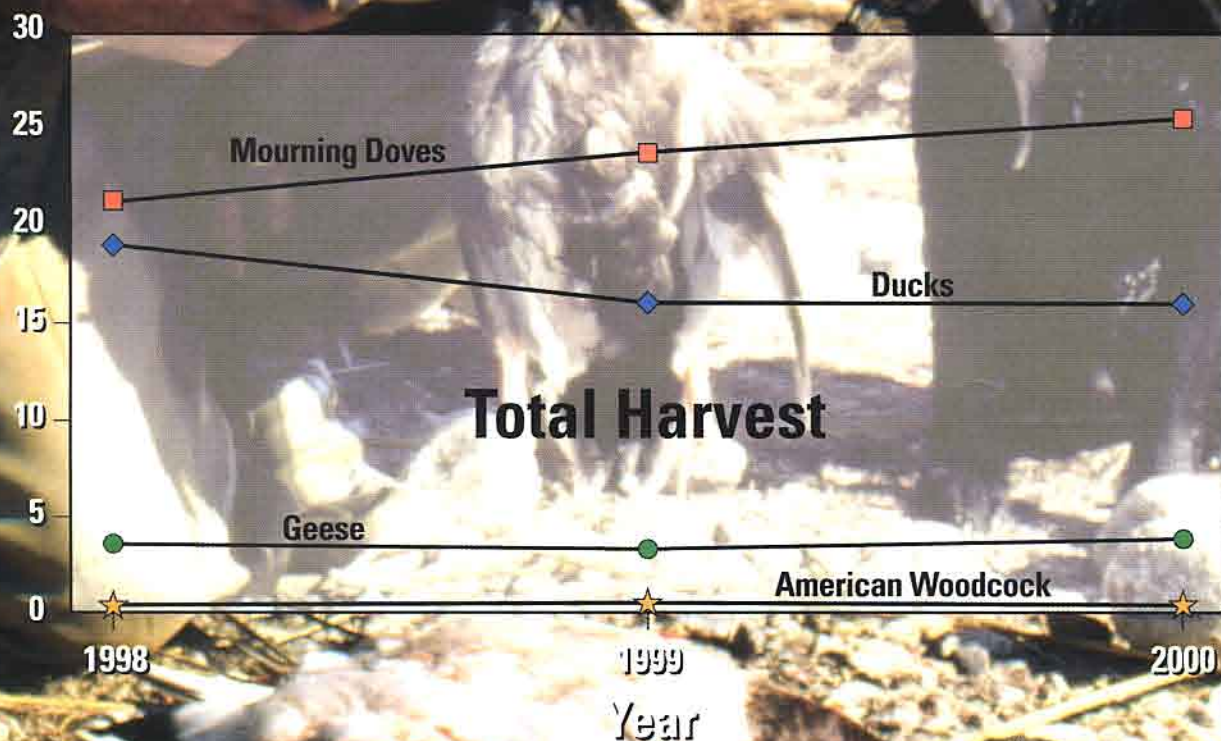


Harvest Information Program: Evaluation and Recommendations

Millions



Alco, and Rite-Aid. Data from this survey also indicate that all chain stores combined sold an average of 45% of the licenses each year in each of the 26 states.

Circle the letter that best indicates how well each chain store handles HIP; G=good, F=fair and P=poor.

As expected, 25 of 30 states indicated that their agency did a *good* job handling HIP while 5 indicated that they did a *fair* job. By contrast, states indicated that 21.2% of other vendors did a *good* job, 58.4% did a *fair* job, and 20.3% did a *poor* job. There were no apparent differences in performance assessment among the other vendors (including Wal-Mart and K-Mart).

Please circle the letters that best indicate the methods your state uses to assess each chain store's performance; A= look for suspicious patterns in data or conduct other types of audits, B=systematic monitoring by agency staff, C=incidental observations by agency staff, D=follow-up on citizen complaints and E= other.

States used various techniques to assess the performance of vendors. There were no apparent differences in these techniques among all vendors, including the agencies. *Incidental observations by agency staff* and *follow-ups on citizen complaints* were the most commonly used techniques, both employed by >60% of the states. About 30% of the states indicated that they *look for suspicious patterns in data or conduct other types of audits*, and/or that they use *systematic monitoring by agency staff* to assess vendor performance.

Circle the letter that best indicates how each chain store handles HIP compared to non-chain stores; B= better, S= same and W=worse.

As expected, most states felt that their agencies handled HIP better than non-chain stores. Twenty responded with *better*, 5 responded with *same*, and 1 responded with *worse*. However, there are some apparent differences in the responses to this question which relate to non-agency chain stores. There were no apparent differences in the responses relative to Wal-Mart and K-Mart or among the other vendors. When Wal-Mart and K-Mart were combined and compared to a grouping of the remaining vendors, it appears that states have determined that the latter grouping does a better job. Wal-Mart and K-Mart combined received ratings of 5.4% *better*, 60.7% *same*, and 33.9% *worse*. In contrast, the other chain stores combined received ratings of 11.7% *better*, 78.3% *same*, and 10% *worse*.

How well does each chain store handle other non-HIP licenses? G=good, F=fair and P=poor.

Again, agencies reported that chain stores did a good job with 24 indicating *good* and 4 indicating *fair*. Also, the responses for Wal-Mart and K-Mart were consistent, but contrasted slightly to a grouping of the other vendors. Wal-Mart and K-Mart combined had ratings of 14 (23.3%) *good*, 34 (56.7%) *fair*, and 12 (20.0%) *poor*. The other vendors combined had ratings of 19 (29.7%) *good*, 36 (56.3%) *fair*, and 9 (14.1%) *poor*. Relatively, there were more *poor* responses for the Wal-Mart/K-Mart group and more *good* responses for the other vendors combined. The *fair* response was similar for both groupings.

DISCUSSION

Chain stores have a substantial impact upon states' licensing systems. Obviously, most states feel that their licensing departments are doing a better job than other vendors. Additionally, most states feel that Wal-Mart and K-Mart are doing a poorer job in implementing HIP and other licenses or permits than other chain stores. Although the survey did not ask the state to rank the vendors, it seems from the results that there is consensus among the states that they (the Agencies) are doing the best job with HIP, other chain store vendors are next, and Wal-Mart and/or K-Mart are last.

It is not clear from the data collected in this survey whether the sheer volume of licenses sold by a vendor diminishes the success of HIP. Clearly, the high volume of HIP permits issued by large vendors such as Wal-Mart and K-Mart, when combined with significant employee turnover, may be a major deterrent to success.

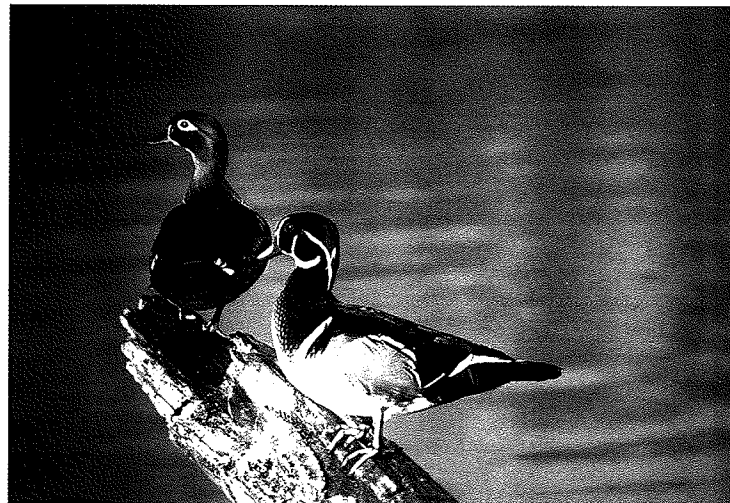
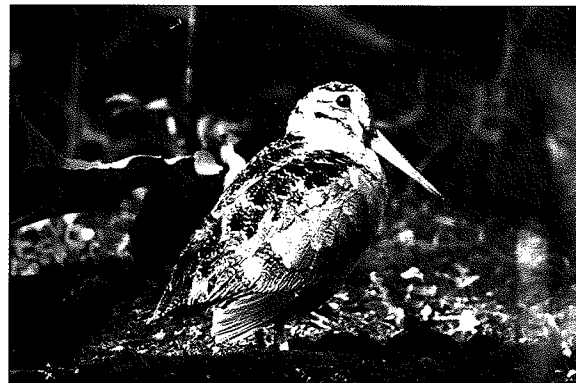
RECOMMENDATIONS

Several states made specific recommendations for improving the performance of large stores. However, they also stated that these techniques had met with mixed success in their respective states. This committee used these recommendations as the basis for developing the following:

1. Develop better monitoring techniques and criteria and take punitive or other corrective action against vendors when needed.
2. Use all available methods and techniques to train vendor personnel on a regular basis. Use of videos, telephones, and printed material is recommended.
3. Enlist the support of, and educate, upper-level management of these vendors.
4. Get a larger percentage of HIP certifications through the state wildlife agency. This can be accomplished using available telephone and Internet systems.
5. Simplify the questions on the HIP forms.
6. Educate the hunters and enlist their support in the HIP certification process.
7. Establish a nationwide telephone (800) system for all HIP certifications.



Canada goose. USFWS photo by Tim McCabe.



Top left: Band-tailed pigeon. *Photo by Worth Mathewson.* Top right: Snow goose. *Photo by David Dolton.* Middle: American woodcock. Bottom left: Common snipe. *Photos by Jack Bartholmai.* Bottom right: Wood ducks. *USFWS photo by Dave Menke.*

The Current Reliability of Harvest Information Program Surveys

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Abstract: The task group examined 4 areas of non-random error, which influence bias associated with Harvest Information Program (HIP) estimates: (1) sampling bias; (2) non-measurement bias; (3) field measurement bias; and, (4) processing bias. These sources of bias associated with HIP surveys should be reduced where possible to provide realistic harvest and hunter pressure estimates. Eliminating as many state exemptions as possible from migratory bird hunter certification lists is a high priority recommendation. Remaining exemptions should be mutually agreed upon by all states with an understanding of the impact each exemption contributes to errors in final estimates. Response rates should be greater than 85% for each HIP survey conducted within a state. Further research is needed to increase current response rates. Research is also needed to determine the impact of measurement error due to inaccuracies in respondents' answers. Additional research likely is needed to design a questionnaire that will reduce these types of measurement errors. Finally, procedures used to process surveys should be examined to determine if coding, entry, or analysis problems are impacting the accuracy of survey results.

INTRODUCTION

The Migratory Bird Harvest Information Program (HIP) provides estimates of migratory bird harvest at national and regional scales. The purpose of this cooperative effort between the states and the U. S. Fish and Wildlife Service (Service) is to provide these estimates for use in harvest management decisions for migratory game birds. Due to the importance of these data in the regulatory process, it is necessary that these estimates be reliable and precise. In other words, a thorough understanding of the biases and their magnitude is important in judging the degree of reliance that can be placed on these estimates when used in the decision process.

Sources of bias that influence the reliability of HIP surveys are called non-sampling (Lessler and Kalsbeek 1992) or non-random error. Non-random error is often called errors of measurement or bias, and is quantified by the distance that the estimate is from its true population value. This distance is not influenced by sampling error, which is the uncertainty due to measuring only a small portion of the population. Sampling error is usually measured by the variance of the estimate. Sampling error, i.e., the variance of the estimate, added to the square of the bias provides a useful measure for judging the accuracy of an estimator. This combined measure is known as the mean square error of the estimate (Cochran 1977:15).

Fortunately, sampling error can be measured as each survey is conducted. Non-random error, however, cannot be measured through a direct approach. Non-random error must be evaluated through examination of procedures, auxiliary survey research, independent research into specific sources of non-random error, and critiquing the survey with an intuitive checklist of non-random error sources. The expense of thoroughly evaluating non-random error can often exceed the cost of the original survey, but the costs are usually worthwhile given the importance of the estimates and their use. However, non-random error may be larger and can contribute more to total survey error than sampling error (Fern Filion, pers. commun.). Therefore, non-random error is much more difficult to measure, but may affect applicability of survey results to a greater extent than sampling error.

Like all surveys, the HIP survey is affected by non-random error. If managers ignore non-random error in HIP results, their decisions concerning migratory game bird hunting can be greatly impacted. Bird populations may be negatively impacted through a too-liberal regulation, or hunters may be adversely impacted by restrictive regulation packages due to biases associated with harvest estimates. In either case, understanding the potential survey bias may prevent migratory bird populations and/or hunters from being adversely impacted by imprecise and inaccurate harvest estimates derived from HIP surveys.

Our goal was to explore different sources of non-random error and to make recommendations concerning the impacts of bias on estimates of harvest, hunter numbers and hunter pressure.

METHODS

We used information from a survey of HIP-cooperator states that the International Association of Fish and Wildlife Agencies (IAFWA) conducted in late 2000. This survey was conducted so that the Ad Hoc Committee on HIP could determine states' views concerning the HIP effort. In our analyses, we carefully examined questions concerning sources of bias in HIP surveys.

We also used a model of total survey error developed by Sheriff and Filion (Fig. 1) as a tool for addressing non-random error. The 4 elements of non-random error are: (1) sampling biases; (2) non-measurement biases; (3) field measurement biases; and, (4) processing results (Groves 1989; Lessler and Kalsbeek 1992). Each of these sources of non-random error affects results by causing the estimate to be either higher or lower than the true value. Even though these sources act independently upon the resulting estimate and the interpretation of results, they may be multiplicative and additive in terms of their impact upon total non-random error within survey results. An enormous challenge exists in obtaining measurable estimates of bias. We explored each source of bias through results of a survey of states involved in HIP, results from on-going HIP surveys, and through an intuitive approach based on literature. The topics explored for each source of non-random error are as follows:

1. Sampling Biases

- Inclusion of non-migratory bird hunters in the sampling frame
- Failure to identify hunter properly in sampling frame
 - Incomplete address
 - Improper response to stratification questions
 - Out-of-date addresses
- Failure to identify all units
 - Identification of hunters who have valid HIP certificates in field, but do not appear in list
 - Identification of exempt hunters
- Multiplicity of names and addresses within the sampling frame

2. Non-measurement Biases

- Non-response to questionnaire
 - Undeliverable questionnaires
 - Delivered, but sampled person does not respond
 - Able to respond
 - Unable to respond (e.g., health reasons, death, etc.)
 - Unwilling to respond
 - Completed but not received by the U.S. Fish and Wildlife Service
- Item non-response to individual questions

3. Field Measurement Biases

- Telescoping of responses from other hunts outside of state of interest
- Telescoping of responses from previous year's hunts
- Duplicity of hunter information in response
- Omission of information from hunts of interest
- Misinterpretation of questionnaire instructions
- Questionnaire design issues, such as readability, length, flow, etc.

4. Processing Results

- Data capture errors in transcription
- Improper analysis
- Improper interpretation of results

By no means is this list exhaustive. These items only represent the most common and important sources of bias. We believe they are also the most influential in the successful implementation of HIP surveys and using HIP results.

RESULTS

Ideal Scenario

Ideally, the sampling frame from each state would include everyone who hunts migratory game birds within the state, and each of these hunters would truthfully answer each of the screening questions at the time that they register for HIP. No one would appear in the state's sampling frame more than once, and the names and addresses would be correct and useable. Upon being randomly selected, hunters would receive HIP questionnaires prior to their first hunting trip. At the conclusion of each hunting trip, selected hunters would correctly record the place that they hunted and the number of birds harvested. At the conclusion of the survey period, hunters would promptly summarize and return their questionnaires to the Service. The postal system would properly deliver all questionnaires from the hunters. The questionnaires would be correctly coded and entered into the database to be analyzed. All analyses would be done correctly under the assumptions of the sampling technique used. The results from these analyses would provide unbiased estimates of the number of migratory game birds harvested and hunting pressure. The sampling error or precision of these estimates would also be provided so that the users could judge the quality of the results. This ideal case would produce estimates with no non-random error or bias, and likely will never exist.

In the real world, problems include such things as defects in sampling frames provided by each state, non-measurement error due to differential non-response, biases in the information provided by the hunters, and processing errors associated with transcription and analysis of data. Also, errors in interpreting HIP results can be further confounded by using this uncertain harvest information during the decision process as if it were unbiased.

Results from the state survey conducted by IAFWA showed that 2-4 states believe that harvest estimates were "very distant" from "reality" depending upon species, while 4-5 states believe that estimates of hunter numbers and days of hunting were "very distant" (Table 1). Surprisingly, most states indicated that for commonly hunted species, such as ducks, geese, doves and woodcock, results were perceived to be "very close" or "close" to "reality." For species that do not have a large hunter constituency, e.g., snipe, coots, and rails, we would expect HIP results to be less precise and possibly have a higher degree of bias associated with them. However, a number of states indicated that for these lesser hunted species results were at least "close" to perceived reality. Yet, most states that provided an opinion for these species indicated results were

“distant” or “very distant” from reality. This dichotomy might be expected due to narrow interest in these lesser hunted species, and knowledge about hunting activities for these species probably is not well developed at the state or the national level. Overall, however, these results show that states have a mixture of opinions concerning the amount of bias associated with HIP results. HIP appears to be providing harvest, hunter number, and days hunted information that is generally unbiased according to the perception of most states.

Sampling Biases

The sampling frame is the foundation of any survey (Lessler and Kalsbeek 1992), and sampling bias occurs due to problems associated with this frame. The sampling frame consists of the finite population about which we wish to make some inference. In the case of HIP, the finite population would consist ideally of all migratory game bird hunters. Problems in the sampling frame can cause survey results to overestimate or underestimate the true values of the target population. Typical problems include non-target individuals, multiplicity of the same individual, omission of individuals, and improper information concerning those included in the sampling frame.

The HIP sampling frame consists of 49 separate lists of hunters. Each of the 49 participating states submits a list of migratory game bird hunters from their state. Therefore, sampling frame errors cause bias to be differential among HIP survey results due to the 49 individual state sampling frames. Fortunately, the sources of survey error have common components that can be evaluated as a whole for HIP, but each state in turn must seriously address those components that affect the quality of their sampling frame submitted to the Service.

Failure to Identify All Migratory Bird Hunters in the Sampling Frame

Sources of Problem.— Sources of error associated with not including all migratory game bird hunters within a state’s sampling frame include:

- Hunters exempt from inclusion in sampling frame
- Hunters failing to become certified
- Failure to capture hunter information even though hunter submits to certification process.

These sources of error cause estimates to be lower than they should be due to exclusion of some individuals from the sampling frame.

Survey Results.— Forty-one states allow licensing exemptions for certain classes of migratory bird hunters (Table 2). Of these, 32 states allow an exemption from HIP certification for certain classes of migratory bird hunters. Only 8 states indicated that they had no exemptions from state or HIP requirements concerning licensing or HIP certification.

“Juniors” or youth hunters were the most common HIP certification exemption (24 states). The age varied from 12-16 with 6 states not reporting an age. Age 16 was the most common reported limit with 13 states indicating that they allow HIP exemption below this age.

The next most common exemption allowed from HIP certification was “landowners hunting on their own land”. Eighteen states allow this exemption (Table 2). This category was followed by “seniors” with 12 states indicating that they exempt this group from HIP certification (Table 2). The age range for “seniors” provided by 8 of these states was 59-69 years old. The most common category was “above age 64” with only 1 state reporting lower than this age. These exempt categories were followed by exemptions for HIP certification for “disabled veterans” (9 states), “persons with disabilities” (7 states),

“other” (7 states), and 1 state reporting an exemption for “other landowners” (Table 2). Under the “other” category, the exemptions from HIP certification included “resident military leave” (3 states), “low income,” “descendants hunting on family farm,” “tenant farmers and family,” “family members residing on farmland,” and “legally defined Native American Kansas residents” (1 state reporting for each of these categories).

We also attempted to examine the issue of migratory bird hunters who were not exempt but failed to be HIP certified. Techniques used to estimate these values included:

- Comparisons with stamp sales (3 states)
- Comparisons with certified purchases (2 states)
- Survey of licensed hunters (not just HIP certified hunters) (2 states)
- Survey of certified HIP hunters (2 states)
- Survey of all hunters, including exempt hunters (1 state)
- General population survey (1 state)
- Law enforcement field contacts (1 state)
- Field check of dove hunters for compliance (1 state)

The range of compliance by species varied from:

- Waterfowl (70-100% for 8 states reporting)
- Doves (58-100% for 6 states reporting)
- Woodcock (32-100% for 4 states reporting)
- Rails (100% for 2 states reporting)
- All migratory bird hunters (66-100% for 10 states reporting)

Eight states using field checks of migratory bird hunters showed the range of compliance to be variable. For doves, it ranged from 70-99% and waterfowl ranged from 92-99% compliance.

Recommendations.— Because the sampling frame is the foundation of any survey, exemptions of some hunter groups from the target population within the sampling frame can have a profound impact on the estimates and their usefulness in the decision process. Any group that is exempted from HIP certification causes an underestimate in the total harvest, days afield and active hunter results. Having a consistent exemption among states, e.g. youth hunters, and having all states conform to this exemption allows for a consistent comparison of results among states and interpretation on a national or regional scale. It is recommended that states which allow more than the youth exemption from HIP certification work to eliminate these other exemptions as soon as possible.

All states should also work toward a 100% inclusion of their non-exempt migratory bird hunters in their HIP lists. Migratory bird hunters who are missing from HIP lists cause results to be underestimated.

Failure to Identify Hunters Properly in Sampling Frame

Sources of Problem.— One problem that can occur during the HIP certification process is that a migratory bird hunter may submit his/her information to be HIP-certified but his/her name and address is either unknown or not included in the sampling frame. This can be due to mechanical failures in the certification process that incorrectly registers the name and address of the hunter or even fails in capturing the name and address altogether. These reporting failures may be due to problems with vendor, data processing problems, etc.

Survey Results.— The IAFWA’s survey of states did not directly address this problem. We, however, explored responses concerning the proportion of states that verify the names and addresses. Thirteen

states (27%) indicated they verify the names and addresses at the time a hunter certifies with HIP. A like number of states also link HIP hunters with name and address information in a separate database. Only 2 states had penalties for vendors who HIP-certify hunters but fail to send in HIP data, and only 1 of these states thought that penalties improved compliance even though neither state has assessed a penalty.

Recommendations.— States need to develop systems that will ensure that everyone is included in the sampling frame. Methods, such as cross-verifying sales with records in the HIP sampling frame, should be used to monitor this process. States need to build processes that will ensure names and addresses of those reported HIP-certified are included in the sampling frame. If names and addresses of HIP-certified individuals can not be determined for a small proportion of the frame, then these numbers should be reported to the Service. Although this recommendation focuses only on a few names and addresses of HIP-certified hunters, states should strive to obtain all the names and addresses for everyone HIP-certified.

Inclusion of Non-migratory Bird Hunters in the Sampling Frame

Sources of Problem.— The inclusion of non-migratory bird hunters as being HIP certified does not necessarily bias the estimates of total harvest, days afield and active hunter participation. This problem, however, impacts the survey efficiency through the measure of precision. In the case of HIP, responding hunters can be easily identified by particular migratory species. This information can be used to derive an unbiased estimate (Lessler and Kalsbeek 1992).

This issue was not quantitatively addressed in the survey of states, but 14 states thought the problem would impact the accuracy of estimates obtained from HIP data either highly or moderately (Table 3).

Recommendations.— People who have no intention of migratory bird hunting during any year should not be included in a state's HIP sampling frame, because their inclusion is costly both for the states and the Service. States should develop processes that would not HIP-certify these people. The purchase of a migratory bird hunter's permit has proven effective in eliminating many non-migratory bird hunters or the general public from being included in HIP sampling frames. When non-migratory bird hunters are included in the lists, there is a higher survey cost due to the increased number of questionnaires that must be mailed and processed to maintain the desired level of precision for the estimates (Groves 1989). It also creates hunter dissatisfaction when they receive surveys for some activity in which they do not participate which in turn potentially impacts long-term response rates.

Multiplicity of Names and Addresses within the Sampling Frame

Sources of Problem.— Multiplicity occurs when the same person appears in the sampling frame more than once. In terms of HIP, we expect multiplicity to occur among frames submitted by the states, because migratory game bird hunters often hunt in more than 1 state. HIP surveys were designed to accommodate multiplicity among frames. Multiplicity becomes a problem when within a state an individual is included in the state's HIP certification information more than once. The effect of multiplicity in this case is to overestimate the total harvest, days afield, and number of active hunters. Unfortunately, not much information exists concerning multiplicity in individual state HIP information.

Recommendations.— Individual state HIP sampling frames should be examined for multiplicity to determine the degree of this problem. If the problem is found to exist, states should take action to develop processes that eliminate duplicates from their HIP sampling frame before submitting it to the Service.

Non-measurement Biases

Non-measurement bias occurs most commonly when selected individuals in the sample do not respond to the questionnaire or to an item within the survey. The impact that this source of bias has upon results can be especially acute when differential rates of response occur based upon some key attribute within the sample. For example, if individuals with high success rates are more likely to respond than those that did not hunt or were unsuccessful, harvest estimates would tend to be higher than the true value. What begins as a representative sample from the sampling frame will not be representative through this self-selection method of respondents (Filion 1980).

Non-response to the Questionnaire

Sources of Problem.— Two sources of non-response to the questionnaire exist; either the postal system did not deliver the questionnaire or the sampled individual chose not to respond. For the first part of the problem, the postal system returns a number of questionnaires that are not deliverable (Table 4). The response rate of those that are believed to be delivered varies by state (Table 4).

For the surveys conducted in 1999, response rates were highest for woodcock (Table 4). Response rates for woodcock varied by state from 31-88% with a national estimate of 60% for the 35 states involved. Undeliverable rates varied from 0% to 37% with a national estimate of 7%. For the 37 states involved in the 1999 dove survey, the response rates varied from nearly 39-80% with a national estimate of 56%. Undeliverable rates for doves varied from 0% to nearly 47% with a national estimate of 8%. For the 1999 waterfowl and coot surveys, the top ends of their response rates were somewhat lower than the other 2 surveys. Response rates varied across the 49 states from nearly 36-74% for waterfowl and 35-75% for coots. Their national estimates for response rates were 52% for waterfowl and 56% for coots. However, ranges for undeliverable rates were similar to woodcock and doves in that for waterfowl it varied from 2-42% (estimate at the national scale for the 49 states was 8%) and 0-37% for coots (national estimate of 8%).

The HIP surveys use 4 different mailing waves to contact selected hunters and those who do not respond to the survey. These waves follow the Dillman (1978) method, and consist of an initial mailing of the questionnaire, a postcard reminder at the end of the particular hunting season, a follow-up reminder including a new questionnaire to non-respondents, and from those who do not respond to this follow-up questionnaire a group is selected to receive a certified letter containing a fresh questionnaire. These mailing waves have been found to increase response rate.

Recommendations.— A goal of at least an 85% response rate to minimize the impact of non-response should be established for HIP surveys. At this level of response, bias in estimates is often influenced more by other sources of non-random error than through differential values between respondents and non-respondents. This target is not being achieved, except for the 1999 woodcock survey (Massachusetts had a response rate of 88%). For the HIP surveys, very few states have response rates that were greater than 70% (e.g. - 7 of 37 states for 1999 dove survey were greater than 70%, 1 of 49 for the waterfowl surveys, 6 of 35 for the woodcock survey, and 6 of 49 for the coots survey). Therefore, it is recommended that additional procedures be explored that would push the response rate towards the 85% target. Dillman (2000) recommends that a letter be sent to the selected individuals prior to the questionnaire, in this case the record form, being mailed. The questionnaire is then sent about a week later followed by a postcard reminder and "thank you" about a week after the questionnaire is mailed. This system might be modified slightly in order to increase response rates. Dillman (2000) also suggests incentives and other methods for increasing the response rate, which might be considered for the HIP surveys.

Model-based methods using both Bayesian and traditional techniques should be explored to estimate the impacts of non-response upon the design-based estimates for total harvest, days afield and active hunters. Filion (1980) illustrated a method using information from each follow-up wave to extrapolate values at the 100% response level. Lessler and Kalsbeek (1992) reviewed several other procedures. An overview of a Bayesian model-based approach was also provided by Lessler and Kalsbeek (1992). Land and McCall (1993) used a Bayesian approach to estimate the effects of nonignorable non-response. With the development of Markov Chain Monte Carlo (MCMC) approaches in the Bayesian environment (Gilks et al. 1996), there is much promise in using Bayesian hierarchical models to address the non-response issue. Further research into these model-based approaches should be conducted with emphasis on correcting the impact of non-response.

Item Non-response to Individual Questions

Sources of Problem.— When a respondent skips an item within the questionnaire, this can contribute to bias in the results. We did not have quantified information from past HIP surveys that addressed this issue. Therefore, we do not know how serious this issue might be and its impact upon HIP results.

Recommendations.— A number of techniques exist for aiding in the elimination of non-random error when item non-response occurs. Lessler and Kalsbeek (1992) review a broad number of these techniques. The most common and acceptable method for dealing with item non-response is to use imputation to fit a replacement for the non-response. Imputation techniques usually implement a model-based approach or classification method. Techniques such as hot-decking (Cox 1980) have been popular in solving this type of problem for other surveys. However, with the advent of MCMC approaches further research in this area may be beneficial in reducing item non-response errors in HIP surveys.

We also recommend that data be kept and analyzed concerning item non-response rates. This information should be examined closely to determine the degree that item non-response impacts HIP results.

Field Measurement Biases

Field measurement biases occur when respondents provide incorrect information. The respondent may or may not intentionally provide data that are incorrect. Field measurement biases are called recall bias, memory bias, or brag bias. These biases can cause estimates to be either higher or lower than the true population values depending upon the degree and direction taken by respondents. Evidence from other game harvest surveys indicates that hunter survey results tend to overestimate the harvest, and that reported harvest from surveys is spread more evenly throughout the season than actually occurs (Filion 1980).

Sources of Problem.— A number of reasons may exist for a respondent not providing truthful information. A common occurrence is for the respondent to “telescope” events outside of the spatial-temporal frame of the survey. In these cases, the hunter might include information from previous years’ hunts or from hunting trips outside of the state. Also, hunters may include the party hunting results instead of their own personal hunting results in an attempt to be helpful. Hunters may also omit hunting trips and harvest. They may be very conscientious at the start of the migratory bird season in recording their hunting trip information, but they forget to record later trips. For those hunters who do not complete the record card after each hunt but are requested to summarize their season through one of the follow-up questionnaires duplicity may be an additional source of measurement error. This occurs when hunters remember an event from one hunt (e.g. - shooting 3 birds) as having occurred on more than 1 occasion, in effect duplicating the event and report over harvest and/or days afield. Duplication, omissions, and telescoping all contribute to the problems of field measurement biases.

Beyond the hunter response, the questionnaire itself can contribute to the hunter's inability to supply correct information. Misinterpretation of questionnaire instructions, or length and complexity of the questionnaire can contribute to the hunter's failure to complete the survey.

Recommendations.—Fortunately, HIP survey questionnaires are designed as a diary or record book of hunting activity. This design helps minimize the bias associated with telescoping, omitting, or duplicating hunting trip information if the data for each hunt are completed immediately following the trip. However, this does not prevent a hunter from procrastinating and telescoping, omitting, or duplicating information if the diary is completed at a much later date than the hunt or some time following the season. We recommend that research be conducted to determine the amount of bias contributed due to the diary and how hunters are completing it. This process could follow similar work done by Atwood (1956) and Wright (1978). Wright (1978:253) provides a model of sources of non-measurement and field measurement biases. With information about the amount of field measurement biases, further research into questionnaire design and methodology should be conducted to optimize the survey package to achieve an objective for minimizing field measurement biases at a reasonable cost.

Beyond researching the field measurement biases problem, states should immediately review their processes used to supply the Service with names and addresses of HIP-certified migratory bird hunters. The time between HIP certification and the mailing of diaries to selected hunters should be reduced to no more than a week. All names and addresses acquired 4 weeks before a migratory bird hunting season within a state should be delivered to the Service at least 3 weeks prior to the hunting season at a minimum. This will provide the Service time to select hunters and mail diaries, ensuring that hunters will have them available at the start of the season.

Processing Results

Sources of Problem.—Processing of returned questionnaires can also be an opportunity for biases to impact survey results. The act of coding, data entry, and analysis are usual sources of this type of bias in harvest estimates. Even the act of interpretation and reporting of estimates can be a source of bias.

Recommendations.—A close audit of the processing of returned survey questionnaires should be undertaken to determine if improvements could be made concerning the coding and data entry of questionnaire information into electronic form. Tests of this system could be easily done using a separate survey. Questionnaires from this separate survey would be reviewed by an audit team for completeness and "correct" answers. Then these questionnaires would be randomly injected into the normal processing of HIP surveys. Once the electronic information was made available, these data would be compared with the audit data to determine the error rates in this process.

Survey data do not always follow a symmetric distribution; thus, normal confidence intervals can be inadequate. We recommend that other techniques, such as a bootstrap approach (Shao and Tu 1995; Manly 1997) or a Bayesian approach using Gibbs sampling (Gilks et al. 1996; Manly 1997), should be explored to account for this asymmetry in the confidence intervals. At the very least, the amount of asymmetry in the HIP data should be measured to determine if it is sufficient to warrant further attention.

A survey of users of HIP results should also be considered. This survey would be more of a marketing survey to determine how these results are used and customer satisfaction concerning the presentation of results. Within this survey, questions concerning timing of results availability, level of precision for estimates and media in which results are presented should be covered.

Impressions about Bias in HIP Surveys

States were asked their opinions concerning how different sources of bias affect the accuracy of estimates obtained from HIP data. States were not consistent in how they viewed the full range of sources of bias (Table 3). States generally believed that issues associated with the sampling frame composition and memory biases had the most impact upon the accuracy of the estimates. Those sources of bias associated with processing data and results were viewed by states as having the least impact upon the HIP data. None of the 10 categories were viewed by all states as being of low impact. Therefore, some states do view all 10 sources of bias categories as having a high or medium impact upon HIP results. Given this stance, the HIP survey process can be improved or should be studied to determine degrees that each of these sources of bias impacts the results of HIP.

GENERAL RECOMMENDATIONS

This task group also had several general recommendations concerning the HIP survey efforts. We would strongly recommend that as changes are made to survey design research be conducted to determine the magnitude of the changes upon the results. To maintain a set of data that could be used as a trend indicator, consistency of bias through time must be maintained or measured. To determine if the bias is consistent, additional research, which is often more expensive than conducting the operational HIP surveys, should be conducted over a number of years to ensure that current estimates are correlated with truth.

An additional amount of funding should be supplied to HIP to support research that would address many of the recommendations and issues presented in this report. We recommend that an additional \$150,000 or more be appropriated or allocated on an annual basis for at least the next 10 years to support research that would improve the HIP survey efforts. Much of this research would probably need to be contracted to institutions that have a strong record of addressing non-random error issues in surveys.

We also highly recommend that states try to maintain a current address list with the fewest number of exempt hunters in their HIP information that is delivered to the Service. The sampling frame is the foundation of the HIP surveys. Without this solid foundation, HIP cannot provide sound results that can aid in migratory bird management. Therefore, it is imperative that each state individually and all states as a group continue to improve their efforts in obtaining the highest quality sampling frames for the HIP survey efforts.

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Top: White-winged dove. *Photo by Roy Tomlinson.* Bottom: White-winged dove hunter in south Texas. *Photo by David Dolton.*

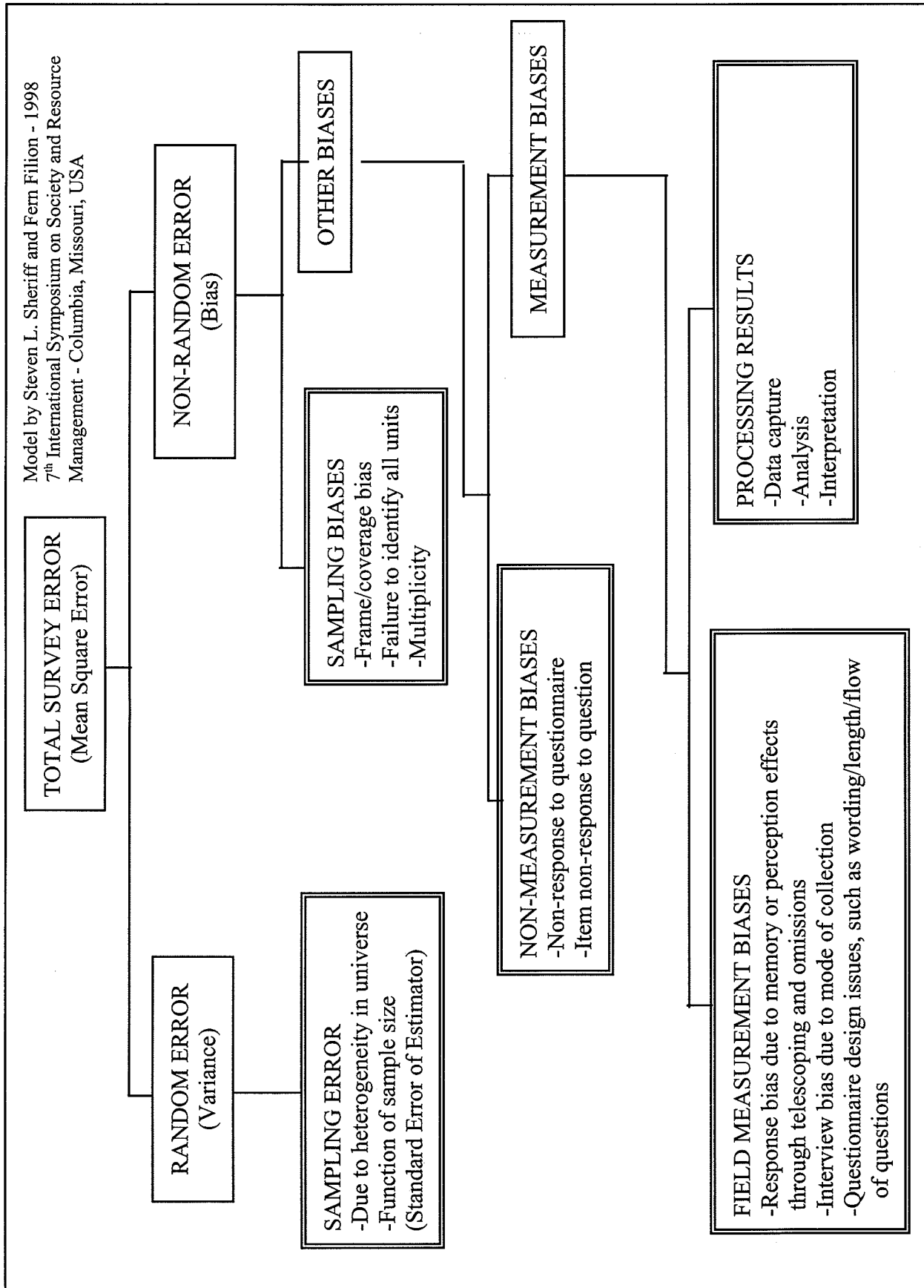
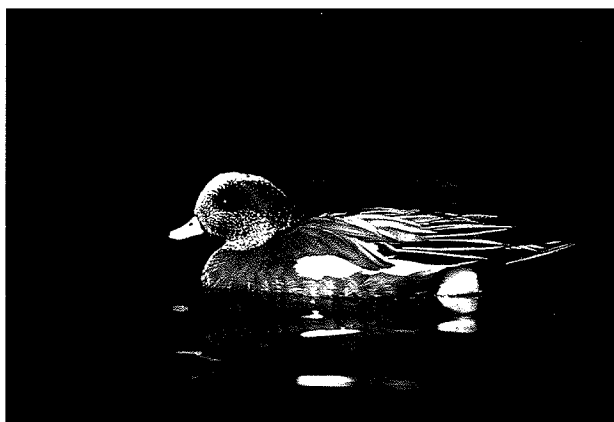


Fig. 1. Model of total survey error (Steven L. Sheriff and Fern Filion, pers. commun.).

Table 1. Frequency of states indicating the distance they thought Harvest information Program results were from "reality" for estimates of harvest, hunter numbers, and days hunted.

Species	Very close	Close	Distant	Very distant	Don't know	No response
Harvest Estimates						
Ducks	2	18	8	2	16	3
Geese	2	15	10	4	15	3
Doves	0	10	7	4	17	11
Woodcock	0	9	3	4	25	8
Snipe	0	4	6	4	30	5
Coots	0	5	4	5	30	5
Rails	0	5	4	3	29	8
Estimates of Hunter Numbers						
Ducks	4	17	5	4	15	4
Geese	4	16	6	5	14	4
Doves	0	8	9	4	17	11
Woodcock	1	9	5	4	21	9
Snipe	0	2	7	5	30	5
Coots	0	4	5	5	29	6
Rails	0	3	5	4	28	9
Estimates of Days Hunted						
Ducks	2	15	7	4	17	4
Geese	3	14	5	6	17	4
Doves	0	9	7	4	18	10
Woodcock	1	7	4	5	24	8
Snipe	1	2	5	5	31	5
Coots	1	3	3	5	31	6
Rails	1	3	3	4	29	9



American wigeon.

Table 2. Migratory bird hunters who are exempt from having a state hunting permit (S) and those exempt from the Harvest Information Program (HIP) certification process (H) according to 2000 HIP Survey results.

State	Seniors	Juniors	Landowners	Other landowners	Veterans	Disabled veterans	Persons with disabilities	Other
Alabama	S H	S H	S	--	--	--	--	--
Alaska	S H	S H	--	--	--	S H	S H	S H
Arizona	--	S H	--	--	--	--	--	--
Arkansas	S	S H	--	--	--	--	--	S
California	--	--	--	--	--	--	--	--
Colorado	--	--	--	--	--	--	--	--
Connecticut	S	--	S H	--	--	--	--	S H
Delaware	S H	S H	S H	--	--	S H	--	--
Florida	S H	S H	--	--	--	S H	S H	S H
Georgia	S H	S H	S H	--	--	H	H	--
Idaho	--	--	--	--	--	--	--	--
Illinois	--	--	S H	--	--	S H	S H	S H
Indiana	--	--	S	--	--	--	--	--
Iowa	--	S H	--	--	--	--	--	--
Kansas	S H	S H	S H	--	--	--	--	S
Kentucky	H	H	S H	--	--	- H	H	S H
Louisiana	S	S H	--	--	--	--	--	--
Maine	S H	--	S H	--	--	H	H	H
Maryland	--	--	S	--	--	--	--	S
Massachusetts	--	--	S	--	--	--	--	--
Michigan	--	--	S H	--	--	--	--	--
Minnesota	--	S H	S H	--	--	--	--	S H
Mississippi	S	S	S	--	--	--	S	--
Missouri	S	S H	S	--	--	--	--	--
Montana	S	S	--	--	--	--	S	--
Nebraska	S	S H	--	--	S	S	--	--
Nevada	--	S H	--	--	--	--	--	--
New Hampshire	S H	S H	S H	--	--	--	--	--
New Jersey	--	S H	--	--	--	--	--	S
New Mexico	--	--	--	--	--	--	--	--
New York	--	--	S -	--	--	S	--	--
North Carolina	--	S H	S H	--	--	--	--	--
North Dakota	--	S	S	--	--	--	--	--
Ohio	--	--	S H	--	--	S H	--	--
Oklahoma	S H	S H	S H	--	--	S	--	--
Oregon	--	S	S	--	--	--	--	--
Pennsylvania	--	--	S H	--	--	--	--	--
Rhode Island	--	S H	S	S	--	--	--	--
South Carolina	S	S H	--	--	--	S	S	--
South Dakota	--	--	S H	--	--	S	S	--
Tennessee	H	S H	S H	S H	--	S H	S H	--
Texas	--	--	--	--	--	S	--	--
Utah	--	--	--	--	--	--	--	--
Vermont	--	--	S H	--	--	--	--	--
Virginia	--	S	S	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--
West Virginia	S H	S H	S H	--	--	S	--	--
Wisconsin*	S	S	--	--	--	--	--	--
Wyoming	S	S H	--	--	--	--	--	--

* Some seniors and juniors are exempt from state permit requirements.

Table 3. State response summary by category for question in the Harvest Information Program (HIP) Survey stating: "Please indicate how much your state believes the following sources of bias affect the accuracy of estimates obtained from HIP data."

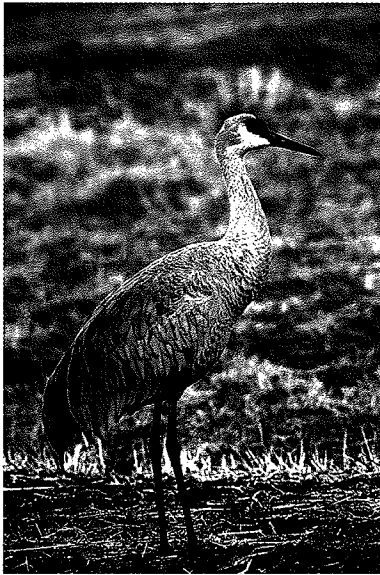
Category	High impact	Medium impact	Low impact	Don't know	No response
Not having all names and addresses in the sampling frame due to exempt hunters	2	5	34	7	0
Not having all names and addresses in the sampling frame due to people not registering even though they are not exempt	5	11	22	10	1
sampling frame due to HIP certification processing problems	2	9	27	9	2
Not having correct screening information due to agent issues	5	12	22	7	3
Including people in the sampling frame that do not intend to hunt migratory birds	4	10	30	5	0
Memory bias of survey respondents selected by the U.S. Fish and Wildlife Service	2	10	16	14	0
Service mailings and follow-ups by selected persons	2	7	13	27	0
Errors in coding and data entry	2	2	24	24	0
Inaccuracies in analysis or inappropriate analyses	1	4	20	24	0
Misinterpretation of results or definitions	2	2	22	22	1
Other sources (these included USFWS scanning process, not including spring snow goose harvest, sample size, and hunters and vendors not understanding screening questions.	2	3	1	9	34

Table 4. Sample size, undeliverable rate (UNDEL. RATE), and response rate (RESP. RATE) for 1999 Harvest Information Program surveys of doves, waterfowl, woodcock, and coots. The UNDEL. RATE for each survey reflects the percent of the sample that was returned by the postal services as not deliverable or addresses unknown. The RESP. RATE is the percent of the sample that was delivered by the postal service that was completed and returned by individuals within the sample.

State	Dove sample	Dove		Waterfowl sample	Waterfowl		Woodcock sample	Woodcock		Coot sample	Coot	
		UNDEL. rate	RESP. RATE		UNDEL. RATE	RESP. RATE		UNDEL. RATE	RESP. RATE		UNDEL. RATE	RESP. RATE
Alabama	1410	4.2	45.5	911	4.9	44.5	982	6.1	54.1	838	4.8	51
Alaska	-	-	-	470	2.6	52.8	-	-	-	65	0	70.8
Arizona	829	3.1	58.7	616	5	50.8	-	-	-	217	6	59.3
Arkansas	2283	9	50.5	3104	9.9	47.4	502	11.8	49.2	634	13.1	52.1
California	1981	5.1	56	2559	5.5	51.2	-	-	-	530	7	59.8
Colorado	689	8.3	70.6	682	10.6	61.8	-	-	-	178	12.9	61.3
Connecticut	-	-	-	284	3.5	69.7	56	5.4	71.7	29	3.4	75
Delaware	259	10.8	51.9	709	10.4	52.4	36	8.3	42.4	149	13.4	59.7
Florida	1375	46.8	51.2	1057	42.2	41.6	177	37.3	55	1052	36.9	52
Georgia	1973	11.2	46.6	1080	9.9	36	282	10.3	50.6	263	10.6	49.4
Idaho	576	6.8	70.2	759	6.2	61	-	-	-	67	7.5	59.7
Illinois	1048	7.2	69.1	1151	6.3	57.5	206	7.3	60.2	181	9.4	59.8
Indiana	610	9.2	62.6	565	7.4	53.3	160	4.4	64.7	119	5.9	57.1
Iowa	-	-	-	941	8.3	59	272	4	75.1	181	5.5	65.5
Kansas	1322	3.6	67.4	1166	6	59.8	137	4.4	72.5	330	5.8	64.3
Kentucky	100	3	47.4	275	4.7	45.8	46	6.5	41.9	103	2.9	54
Louisiana	1477	5.3	46.1	2351	5.9	47	353	5.9	53.3	427	6.8	53.5
Maine	-	-	-	1329	7.8	41.6	4430	6.5	60.6	8041	6.6	53.3
Maryland	421	7.1	58.1	1548	8.6	51	130	8.5	58.8	163	9.8	59.9
Massachusetts	-	-	-	735	6.9	74	45	4.4	88.4	142	4.2	73.5
Michigan	-	-	-	1653	3.9	52.6	941	3.3	58.1	1055	2.9	49.5
Minnesota	-	-	-	1893	4	51	690	3.6	69.9	1028	5.4	65
Mississippi	1003	3.7	50.2	711	4.4	52.2	183	4.9	60.9	193	5.2	47
Missouri	949	10.1	55.5	1090	11.9	52.4	231	9.1	31	149	8.1	58.4
Montana	125	1.6	66.7	337	3.3	57.4	-	-	-	177	5.6	70.1
Nebraska	1031	5.7	66.8	1353	5.9	59.7	182	8.8	70.5	301	4.7	57.8
Nevada	224	13.8	69.4	341	11.7	65.1	-	-	-	88	11.4	64.1
New Hampshire	-	-	-	2313	3.3	47.6	428	4	63.5	188	4.3	62.2
New Jersey	-	-	-	725	6.3	54.9	57	8.8	63.5	151	13.2	62.6

Table 4. Continued.

State	Dove sample	Dove UNDEL. RATE	Dove RESP. RATE	Waterfowl sample	Waterfowl UNDEL. RATE	Waterfowl RESP. RATE	Woodcock sample	Woodcock UNDEL. RATE	Woodcock RESP. RATE	Coot sample	Coot UNDEL. RATE	Coot RESP. RATE
New Mexico	297	8.4	58.5	439	6.8	61.6	-	-	-	75	5.3	67.6
New York	-	-	-	1456	9	61.1	211	9	77.1	186	12.4	65.6
North Carolina	1083	6.2	47.7	969	7.1	46	551	9.4	48.7	250	8	53.9
North Dakota	609	6.6	70.8	1240	5.5	56	-	-	-	110	10.9	62.2
Rhode Island	10	0	80	683	2	68.5	76	1.3	66.7	171	3.5	61.8
South Carolina	1830	7.3	48.7	1154	8.7	37.8	346	7.5	49.7	485	4.3	62.1
South Dakota	721	5	69.3	1060	7	65.8	-	-	-	188	6.9	74.9
Tennessee	1083	9	38.9	1391	10.1	36.5	367	10.1	42.7	365	14.2	35.5
Texas	6257	9.4	46.2	5141	10	44.2	374	13.9	49.4	1220	10.3	45.5
Utah	2303	5.1	75.1	702	10.8	54.8	-	-	-	211	4.7	63.7
Vermont	-	-	-	341	6.2	58.8	109	2.8	69.8	307	7.2	57.5
Virginia	829	9	59.9	988	10.7	57.9	180	8.9	67.1	194	11.9	67.8
Washington	369	9.2	72.5	1274	8.8	59	-	-	-	710	10.6	73.9
West Virginia	117	2.6	66.7	374	4	57.7	6	0	66.7	34	5.9	50
Wisconsin	-	-	-	2235	3.8	60	1058	4.2	74.1	488	2	69.7
Wyoming	140	1.4	76.8	140	4.3	64.2	-	-	-	41	4.9	59



Top left: Greater sandhill crane. *Photo by Roy Tomlinson.* Top right: Sandhill crane hunters near Tappan, North Dakota. *Photo by John Lokemoen.* Bottom: Greater sandhill cranes leaving a night roost at the Bosque del Apache National Wildlife Refuge in New Mexico. *Photo by Roderick Drewien.* Sandhill crane harvest estimates for Alaska are derived via the Harvest Information Program (HIP). For states in the continental U.S., these estimates are calculated from a sample of hunters who have obtained a special federal permit to take the birds. In Colorado and Texas, HIP or point-of-sale electronic records are used to identify crane hunters in lieu of a special permit.

The Impact of the Harvest Information Program on State-Level Survey Capability and Reliability

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Abstract: We focused on how the implementation of the Harvest Information Program (HIP) has changed state survey methodologies in recent years. While some state surveys have been discontinued, numerous state surveys continue based on regional or other special needs. States reported both positive and negative impacts to their state surveys caused by HIP. We recommend further communication and information exchange to improve the acceptance of HIP in many states and possibly reduce duplicate efforts to obtain harvest statistics. Also, there is a need for completed HIP survey information to be distributed to states in a timely manner.

INTRODUCTION

With the implementation of the migratory game bird Harvest Information Program (HIP), a primary goal was to provide estimates of migratory bird harvest at national and regional scales. As a part of the implementation, it was determined that the level of precision of HIP estimates might not be adequate to meet individual state's needs for survey information. This was listed in a letter from the U.S. Fish and Wildlife Service (Service) to all State Directors during the summer of 1995. Nevertheless, HIP appears to have had an impact on state harvest surveys. Questions were posed to all states on how HIP has changed state survey methodologies in recent years.

RESULTS

Of 48 states responding to questions regarding HIP impacts on state surveys, 64% indicated that state harvest surveys for all species previously conducted before HIP implementation had continued to date. Seventeen percent of the states continued some previously conducted surveys and 19% discontinued their individual surveys.

States were also questioned on how state survey methodology had changed with the implementation of HIP. Seventy-three percent of the responses indicated that no changes had been made in state survey methodologies and had maintained a status quo. The majority of changes in those states making adjustments was directly due to the implementation of HIP.

Only 8 states indicated that problems were encountered in the implementation of HIP. Problems varied from administrative costs and licensing logistics. Some problems were resolved with assistance from the Service.

States were asked to describe any positive and negative impacts to their state surveys. On the positive side, many states indicated improved efficiency, reduced costs, improved sampling bases, and elimination of state surveys. On the negative side, delay in receiving harvest data from the Service, increased costs in switching programs, distrust of HIP estimates, and the loss of some sampling frames for state surveys were noted.

DISCUSSION

Since the implementation of HIP was thought by many states as a way to improve overall efficiency in collecting harvest information for all migratory bird species, it can be perceived from this survey that HIP has impacted some state surveys. Over 80% of states are still conducting independent surveys. Special information needs to aid in state migratory bird harvest management appears to be the primary reason why a majority of states have retained their individual survey efforts.

An Executive Summary (of the May 1995 HIP meeting in Denver, Colorado) was prepared by the Service and distributed to each State Director. It clearly stated the reason why states might consider retaining their efforts as follows: "HIP surveys are designed to produce state-level estimates with 95% confidence intervals of 10-20% for mourning doves, ducks, geese, and woodcock. For many states, that level of precision will not be adequate to replace their state migratory bird harvest surveys because they often need precise estimates at a much finer level (zones, counties, etc.)."

States can use HIP results for comparative purposes with the realization that differences in sampling frames, methodology, presentation, and analytical methods may affect results differently among surveys. States may require results to be precise at much finer levels (zones, counties, etc.) than are provided by HIP. However, if a state only needs statewide harvest estimates for their use, then HIP results may be sufficient, allowing a state to discontinue their survey efforts for migratory bird harvests. In many cases, HIP results may need to be supplied in a timely manner to meet this need.

RECOMMENDATIONS

One area that would aid both the Service and states concerns special management seasons that are implemented among several states, such as the Conservation Order for the population reduction of light geese and special early seasons for resident Canada geese. By having the Service implement separate surveys to evaluate the impact of these special seasons, a more consistent approach could be used. This type of consistency would eliminate differing methods used among states for evaluating these seasons. This unified effort through the Service might cause a burden on both the states and the Service in obtaining meaningful results. States might need to establish a unified system in order to supply a consistent sampling frame, while the Service would have the burden of designing, conducting, and funding these additional surveys for the benefit of all. This recommendation should be a Standard Operating Procedure when the Service requires evaluation at a national or regional scale for implementation of special management regulations.

Two surveys (state and HIP) for all species seems to be occurring in a majority of states and an overall reduction of state surveys with the implementation of HIP has not resulted. It is strongly recommended that the Service, working with the International Association of Fish and Wildlife Agencies (IAFWA), continue to strive to improve acceptance of HIP as the standard for obtaining needed harvest data. No doubt, recommendations and their implementation from other task groups working on the review of HIP will result in wider acceptance of this program and elimination of some state concerns. Continued communications and information exchange between states and the Service will be crucial in order to gain wider acceptance of HIP.

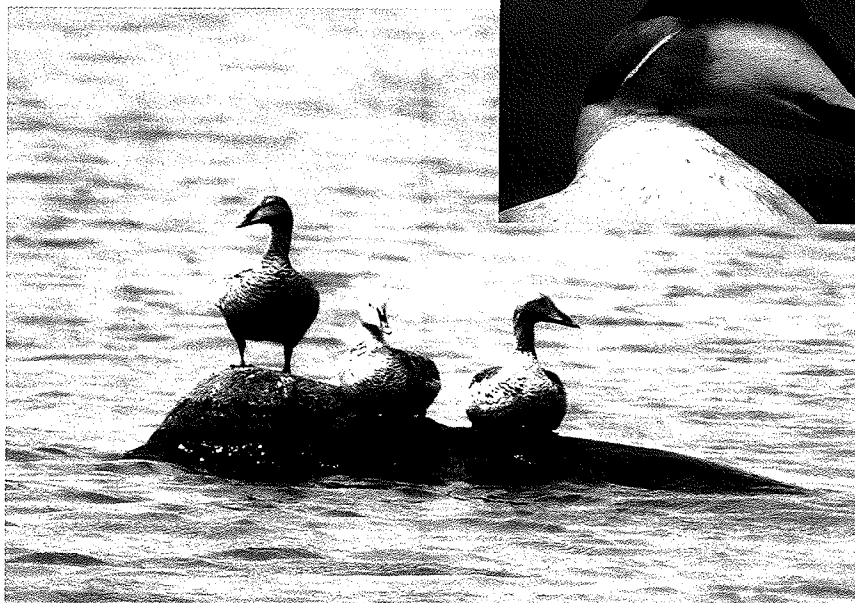
It should not be expected that 2 separate methodologies should result in the same estimates for harvest. HIP is capable of providing acceptable national and regional estimates for many species. However, the needs of some states to focus on a particular species because of special management concerns or for legal requirements shouldn't preclude continuation of a state survey. However, the states should consider using HIP information in place of conducting their own surveys, if HIP supplies their necessary data needs. A followup survey might be conducted among states to pinpoint exact needs and factors that

would aid in decreasing multiple surveys. An information and education program might be developed by IAFWA using information from states that have successfully used HIP to assist other states in implementation.

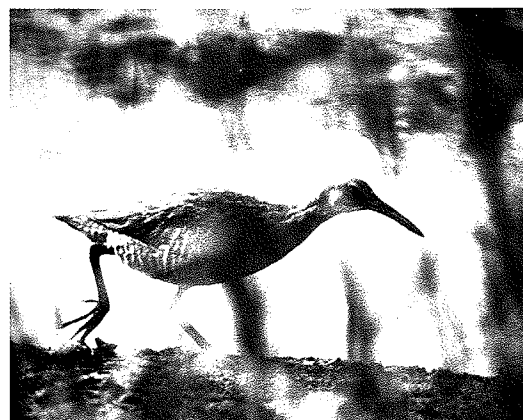
Finally, improved delivery of HIP estimates seems crucial to the acceptance of the program. The Service should continue to strive for improved time-lines for completion of final harvest estimates and work closely with states to maintain good sampling frames.



Long-tailed duck. *USFWS photo by Glen Smart.*



Common eiders. *Photos by T. J. Moser.*



Left column from top: Virginia rail, *photo by Jack Bartholmai*; purple gallinule, *USFWS photo by Roy Lowe*; king rail, *photo by Gregory Kearns*. Right column from top: common moorhen, *photo by Jack Bartholmai*; clapper rail, *photo by Gregory Kearns*; sora, *photo by Jack Bartholmai*.

An Evaluation of the Success and Problems with Different Types of License Systems on the Quality of Data Received

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Abstract: A review of various license systems used for collecting Harvest Information Program (HIP) data indicates little difference in the effectiveness of the system employed. Many states use multiple license systems, which makes it impossible to identify one system as the best. That trend will probably increase in the future. Common sense indicates the best data will be collected directly from the hunter with no interference from a third party, i.e., a license agent. An example would be an Internet system. The next best approach would be to reduce the number of third party participants and let a few license agents specialize in HIP data collection for multiple states.

BACKGROUND

States use a variety of license systems that fall into 6 types. Although there may be slight variations from state to state, there are 4 basic systems: manual, automated, telephone, and Internet.

Manual Licenses

Licenses are in a paper or paper-like format and information must be hand-written by a license agent or the hunter. There may be stamps, which authorize additional activities, attached to the license. One to one contact between the seller and purchaser is required. A manual or semi-automated count of sold/unsold licenses is required for compilation of statistical numbers and for accounting purposes.

The 2 types of manual systems are:

1. Separate individual licenses for each type of privilege or multiple books of individual licenses.
2. Universal licenses that allow the license agent to check off the types of privileges purchased.

Automated Licenses Sold at a Walk-in Agent's Location

Licenses are sold on equipment that immediately captures sales data and prints out a license on paper or paper-like stock. Sales data are transmitted to a host location for compilation of statistical numbers and for accounting purposes. These systems require one-to-one contact between the seller and the purchaser.

The 2 types of automated license systems in this category are:

1. Store and forward automation which collects data at the agent's location and transmits accumulated data to the host location at specified times.
2. Online automation has either continuous or dial-up access to the host-system database and can immediately update those files with sales data. The agent can also verify the hunter's information, making changes as necessary.

Telephone License Sales

Licenses are sold utilizing a toll-free line that is supported by a live operator or an interactive voice response (IVR) system. The hunter calls the telephone number and provides required information. They may be given a temporary authorization number for immediate use and/or have the permanent license mailed to the hunter within 2 weeks.

Internet License Sales

Hunters access a web site, providing all information required for purchasing a license. They may be given a temporary authorization number for immediate use and/or have the permanent license mailed to them within 2 weeks. Some states also have a system that allows the hunter to print the license from their personal computer.

LICENSE SALES AND HIP CERTIFICATION

As technology advances, most states are taking advantage of the opportunities presented and use multiple systems for their license sales.

HIP certification may be issued using the same method as is used for issuing licenses or it may be different. For example, a state issuing paper licenses may not offer paper HIP certification but require hunters to use a toll-free telephone service for it. Also, HIP certification may be offered through even more systems than a state's licenses are offered. For example, a state issuing paper licenses may offer HIP certification by telephone, Internet, and paper.

EFFECTS OF DIFFERENT LICENSE SYSTEMS

To review the effects of different license systems on collection of data, we looked at the quality of data submitted. The U. S. Fish and Wildlife Service Division of Migratory Bird Management's Harvest Surveys Section (HSS) collects data from all states and reviews the results. Two benchmarks from HSS have been used for this task. The first is estimates of the number of migratory bird hunters in each state, based on a combination of factors, including estimates from the *National Survey of Fishing, Hunting and Wildlife-Associated Recreation*, federal duck stamp sales, and information from state wildlife biologists. The actual number of migratory bird hunters was not known for any state, thus, no true reference numbers were available (Table 1). Many states have changed their collection processes since this snapshot of information was taken. The following review is based on the status reflected in the HIP Survey as it was returned in the later months of 2000.

Actual HIP certifications in 11 states fall within +/- 5% of the HSS estimate (Table 2). Four of these states used a single license system to collect HIP data. The remaining 7 states used 2 or 3 different systems for issuing licenses and HIP certifications. In some instances, the system used for HIP was not the same system used for licenses. For instance, Iowa has a manual universal system for selling licenses, but collects HIP data by telephone. Basically, all systems were used by at least 1 state for licenses. Additionally, all systems were used by at least 1 state for HIP.

There were 19 states for which actual HIP certifications missed the HSS estimated number of migratory bird hunters by +/- 25%. Once again, all license systems were used by at least 1 state with only 6 states using a single type of license system. All types of license systems were used to collect HIP data. Once again, methods used for HIP did not necessarily match the licensing systems. Details of this information can be found in Table 2.

States with unusual patterns in their total HIP certifications, as reported in Table 1, were contacted for possible explanations. This was not a question on the survey but, after further discussion, was considered to be an important factor in evaluating the task. Although various reasons or possibilities were expressed, the majority of states' answers involved problems with either hunters or license agents. Mostly, they cited unconcern or lack of understanding by either or both of these groups. Some states indicated that they had changed their license systems, but did not feel that was a long-term problem. They thought the change in itself caused the fluctuations, not the type of system adopted.

The second benchmark is the product of another chapter of this report (see *The Scope and Impact of Hunter Non-compliance with the Harvest Information Program*, p. 39). In that chapter, "match ranks" comparing HIP estimates of hunter numbers with results of other surveys range from 1 (the best match) to 6 (the worst match). Ducks and geese have a combined match rank (waterfowl) with doves and woodcock each having separate match ranks. For this comparison, doves and woodcock were considered as 1 unit, with waterfowl comprising the other unit. All states with a match rank of 1 or 6 were listed for each unit (Table 3). Again, all types of license systems were used and HIP certification systems did not always match the basic license system.

CONCLUSIONS

All license systems can be used effectively to collect data. The dedication of the hunter or license agent in providing and collecting data seems to have more of an effect than the type of system used. Although the hunters can provide inaccurate data, the more likely situation is that the agent does not take the time to collect accurate information. Many agents have already learned that a shortcut for the time-consuming survey is to simply answer "no" to the first question. Typically, license agents sell hunting and fishing licenses as a draw for their business. Any commission they are paid for issuing licenses does not compensate for the time and effort involved with the sales. Only 15 states indicated they paid the agents a commission for HIP certification. These commissions ranged from \$0.10 to \$1.00. Three states paid \$1.00 or more and included Connecticut (\$1.00), New Mexico, (\$1.00), and Pennsylvania (\$1.00).

Two of these states, Connecticut and New Mexico, were within +/- 5% of the HSS estimate, whereas Pennsylvania was about 20% over the HSS estimate. Apparently, there is no clear benefit to a commission at this level even though it is the highest paid commission.

As technology changes in future years, the role of the license agent may change drastically, possibly to the point of fading away. But today's fish and wildlife agencies still rely heavily upon the local businessman for license distribution. Although hunting and fishing licenses are not critical to the operation of businesses, distribution of licenses through those local businesses is critical to fish and wildlife agencies. Attempts to penalize those businesses for failure to comply with complicated requirements, without compensating them for the time involved, will create problems. Although 2 states have established penalties for non-compliance, neither of them have ever levied the penalty. One state, Pennsylvania, indicated a perception that the threat of being penalized improved compliance.

Theoretically, the best method of capturing data would be directly from the hunter, not through a sales agent. The ideal situation would also include capturing a current address at the time of certification instead of relying on information in a database that may be updated infrequently. It would also be better to collect responses to survey questions prior to issuing the certification. Since capturing alpha information on a telephone interactive voice response system is extremely difficult, the Internet is the only system that meets the criteria listed above and would allow a hunter to respond to questions and get an authorization number prior to certification. A live operator system would be the next best option. The contractor would have a minimal number of persons to train, as opposed to the 700 to 1,000 agents for each state, and would focus on the process as a primary business function. Local businesses currently

used by states for license agents do not have HIP certification as a primary business function. It's one tiny, very unprofitable part of their business.

There is no state that currently uses the Internet as a sole method of issuing HIP certifications. Not all hunters have access to this system so it will remain as a supplemental system for the near future.

There are several states that use a live operator telephone system as the sole provider of HIP certifications. Although this still requires the intervention of a third party to record data, the state is dealing with only 1 third party and not multiple vendors. There is universal access to telephones and, by using a toll free line, the access cost to the hunter is at most the cost of a call from a pay phone.

Currently, there is no one best method available and no consistency. Neighboring states may use totally different systems.

RECOMMENDATIONS

Four of the 9 task groups studied the HIP-certification process. All 4 concluded there were problems related to license vendors collecting data. Most states rely on a large number of retail license agents to collect data and/or issue the certifications. Efforts to monitor compliance, as suggested in Task 3 (p. 31), can be very complicated, time consuming, and costly with no assurance of success or even improvement. Task 4 (p. 39) recommends that states work with license agents to ensure that all migratory bird hunters are provided HIP certification. Task 5 (p. 47) notes particular problems with the large chain stores. These stores have multiple locations, a high employee turnover, and a high volume of sales/certification. In our analysis, we found that the accuracy of HIP data is more closely connected to the dedication of individuals providing the information than to the type of collection/issuance system used.

We recommend eliminating a third party from having to ask hunters for information. Collecting information directly from hunters is clearly preferable. Currently, some states allow the hunter to report HIP information via the Internet and through telephone systems without third-party intervention. As a result our findings, we recommend that this type of "direct-collection" system be investigated thoroughly.

We recommend a multi-state system for HIP certification. A uniform, standardized system for data collection would address problems with hunters knowing what to do and how to comply. While this would require a high level of cooperation between states, we believe that hunters will soon expect such regional or centralized systems given the technology available today.

We recommend an analysis of alternative methods of collecting hunter information that would result in more data being collected with a higher level of accuracy. All license systems are capable of collecting hunter information. However, the accuracy of this information depends on hunters and license vendors. If a hunter provides faulty information, there is very little that can be done beyond educational efforts. If a license vendor does not collect information properly, there are several alternatives for action.

Table 1. *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* (Survey) migratory bird hunter estimates, 1999 Harvest Survey Section (HSS) estimates, and number of 1999 and 2000 Harvest Information Program (HIP) certifications.

State	Survey		HSS	HIP certifications		Percent difference		License systems*						
	1991	1996	1999	1999	2000	1999	2000	1	2	3	4	5	6	7
Alabama	104,000	83,000	100,000	95,648	95,787	-4	-4				x	x		
Alaska	13,000	17,000	11,000	9,333	9,884	-15	-10				x	x		
Arizona	71,000	75,000	60,000	40,450	45,023	-33	-25				x		x	
Arkansas	75,000	107,000	100,000	147,132	191,063	+47	+91	x	x		x	x		
California	234,000	247,000	180,000	157,775	157,806	-12	-12				x			
Colorado	58,000	62,000	60,000	48,300	46,472	-19	-23					x	x	
Connecticut	8,000	7,000	8,000	7,788	7,330	-3	-8				x			
Delaware	15,000	22,000	10,000	8,937	8,708	-11	-13					x	x	
Florida	67,000		80,000	81,623		+2			x			x	x	x
Georgia	77,000	128,000	90,000	148,898		+65		x	x				x	
Idaho	26,000	38,000	30,000	27,229	26,355	-9	-12	x				x	x	
Illinois	121,000	98,000	100,000	69,134	72,356	-31	-28					x	x	
Indiana	38,000	27,000	35,000	33,880	34,111	-3	-3					x	x	
Iowa	26,000	36,000	30,000	30,285	31,475	+1	+5					x	x	
Kansas	54,000	63,000	55,000	57,266	58,729	+4	+7	x			x		x	
Kentucky	81,000	77,000	60,000	45,165	50,751	-25	-15				x			
Louisiana	127,000	141,000	140,000	144,610	137,816	+3	-2	x	x			x	x	
Maine	12,000	25,000	25,000	67,220	58,948	+169	+136	x	x					
Maryland	34,000	47,000	40,000	50,164	49,231	+25	+23	x	x					
Massachusetts	18,000		10,000	5,582	5,915	-44	-41					x	x	
Michigan	92,000	114,000	110,000	103,675	105,379	-6	-4		x			x	x	
Minnesota	84,000	151,000	150,000	119,750	187,102	-20	+25	x	x		x			
Mississippi	86,000	120,000	90,000	59,542	61,570	-34	-32				x	x	x	
Missouri	81,000	62,000	70,000	68,070	61,425	-3	-12	x	x					
Montana	20,000	31,000	25,000	16,934	15,928	-32	-36				x			
Nebraska	48,000	51,000	50,000	47,467	43,507	-5	-13	x			x		x	
Nevada	18,000	17,000	15,000	10,423	9,858	-31	-34					x	x	
New Hampshire	7,000	11,000	10,000	14,453	6,224	+45	-38					x	x	
New Jersey	26,000	23,000	20,000	13,262	11,785	-34	-41					x	x	
New Mexico	23,000	18,000	20,000	19,307	22,001	-3	+10				x			
New York	60,000	59,000	60,000	37,291	35,711	-38	-40					x	x	
North Carolina	94,000	117,000	100,000	209,076	230,333	+109	+130	x	x					
North Dakota	34,000	22,000	50,000	52,546	41,097	+5	-18		x		x	x	x	
Ohio	36,000	49,000	60,000	111,715	378,810	+86	+531	x	x					
Oklahoma	77,000	73,000	70,000	66,862	58,632	-4	-16			x				
Oregon	33,000	57,000	50,000	56,659	56,087	+13	+12	x						
Pennsylvania	111,000	79,000	100,000	119,831	120,621	+20	+21				x		x	
Rhode Island	3,000	4,000	3,000	2,222	1,996	-26	-33				x			
South Carolina	70,000	90,000	90,000	94,951	87,896	+6	-2			x		x	x	
South Dakota	39,000	46,000	50,000	50,101	45,961	0	-8				x			
Tennessee	73,000	71,000	75,000	120,542	299,804	+61	+300	x	x					
Texas	470,000	369,000	500,000	763,361	819,799	+53	+64	x	x					
Utah	20,000	26,000	30,000	32,709	31,654	+9	+6			x			x	
Vermont	6,000	15,000	10,000	9,277	7,199	-7	-28				x			
Virginia	93,000	48,000	60,000	45,841	44,789	-24	-25					x	x	
Washington	51,000	65,000	55,000	47,097	45,207	-14	-18				x			
West Virginia	6,000		4,000	3,259	3,484	-19	-13				x			
Wisconsin	108,000	98,000	110,000	162,420	174,912	+48	+59	x	x					
Wyoming	6,000	22,000	12,000	12,565	11,697	+5	-3				x			
Total	3,134,000	3,208,000	3,273,000	3,747,627	4,108,228									

* 1 = automated online; 2 = automated store and forward; 3 = manual universal; 4 = manual multiple books; 5 = telephone; 6 = Internet; 7 = other.

Table 2. License systems used by states in which actual Harvest Information Program (HIP) certifications were (1) in close agreement with (within 5% of) the Harvest Survey Section's (HSS) estimate of migratory bird hunters in the state, and (2) very different from (more than 25% off) the HSS estimate. "L" indicates the method(s) the state used to sell hunting licenses and "H" indicates the method(s) used to issue HIP certifications.

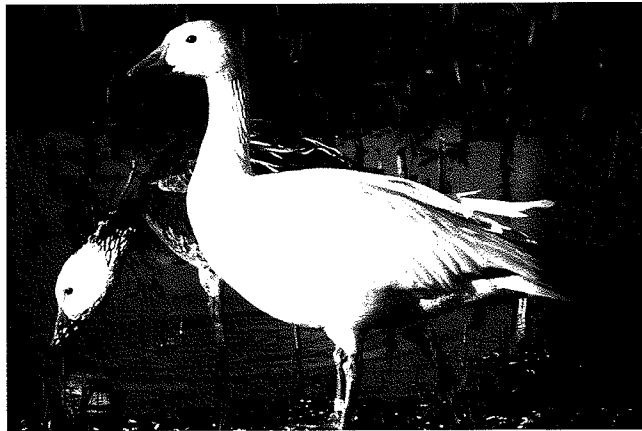
State	License system					
	Automated online	Automated store and forward	Manual universal	Manual multiple books	Telephone	Internet
States within +/- 5% of HSS estimate						
Alabama				L/H	L/H	
Connecticut				L/H		
Florida		L			L/H	L/H
Iowa			L		H	
Kansas	L/H			L/H		L/H
Louisiana	L	L/H			L/H	L/H
Missouri	L/H	L/H			H	
Nebraska	L			L	H	L/H
New Mexico				L/H		
Oklahoma			L/H		L/H	
South Dakota				L/H		
States more than +/- 25% off HSS estimate						
Arizona	L/H	L/H	L/H	L/H	L	L/H
Arkansas	L/H	L/H			L/H	L/H
Georgia		L/H			L/H	L/H
Illinois				L	L/H	L/H
Maine				L/H		H
Maryland		L/H				
Massachusetts			L	L	H	
Mississippi			L/H		H	
Montana				L		H
Nevada				L	H	
New Hampshire			L		H	H
New Jersey				L	H	
New York			L		H	H
North Carolina		L/H			L/H	
Ohio		L/H				
Rhode Island			L/H			
Tennessee	L					
Texas	L/H	L/H			L/H	
Wisconsin	L	L/H			L/H	

* = stamps; ** = mail; ^ = separate form

Table 3. License systems used by states for which Harvest Information Program (HIP) survey estimates of active hunters (1) agreed closely with results of other surveys (best match), and (2) differed most widely from results of other surveys (worst match). "L" indicates the method(s) the state used to sell hunting licenses and "H" indicates the method(s) used to issue HIP certifications.

State	License system						
	Automated online	Automated store and forward	Manual universal	Manual multiple books	Telephone	Internet	Other
Best match/waterfowl							
Delaware			L	L	H	H	
Iowa			L		H		
Michigan		L/H			L/H	L/H	
Missouri	L/H	L/H			H		
Nebraska	L			L	H	L/H	
Nevada				L	H		
New Jersey				L	H		
Oklahoma			L/H		L/H		
Oregon	L/H						
Rhode Island			L/H				
Texas	L/H	L/H			L/H		
Virginia				L	H		
Washington				L/H			
Wisconsin	L	L/H			L/H		
Best match/dove and woodcock							
Colorado				L	H	H	
Minnesota	L/H	L/H	L/H		L/H		
Pennsylvania				L/H		L/H	
Wisconsin	L	L/H			L/H		H
Worst match/waterfowl							
Colorado				L	H	H	
Idaho	L/H				L/H	L/H	
Montana				L	H		H^
Ohio		L/H					L/H**
Wyoming				L/H		H	
Worst match/dove and woodcock							
Delaware			L	L	H	H	
Florida		L			L/H	L/H	L*
Louisiana	L	L/H			L/H	L/H	
Maryland		L/H					H^
New York			L		H	H	
Virginia				L	H		

* = stamps; ** = mail; ^ = separate form



Top: Snow goose hunter in North Dakota. Middle left: Hunter in Saskatchewan with geese (white-fronted, Canada, Ross's, and snow). *Photos by T. J. Moser.* Middle right: Snow geese. *USFWS photo by Dave Menke.* Bottom: White-fronted geese. *Photo by T. J. Moser.*

Estimated Annual Costs Associated with the Harvest Information Program

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Abstract: We used data provided by state wildlife agencies and the U. S. Fish and Wildlife Service to estimate the total annual cost of the Harvest Information Program (HIP) at \$4,441,000. This figure includes administrative costs incurred by the states (\$1,516,000) and the USFWS (\$1,161,000); costs incurred by hunters, including both the direct cost of HIP fees and the indirect cost of the value of the time it took for them to obtain HIP certification (\$1,020,000); and costs incurred by license vendors, in the form of the value of the time it took them to issue HIP certifications (\$744,000).

INTRODUCTION

Annual, ongoing costs associated with the Harvest Information Program (HIP) that can be quantified to some degree fall into 6 categories: (1) direct costs incurred by the state wildlife agencies during the process of collecting the required information from all migratory bird hunters and sending those data to the U.S. Fish and Wildlife Service (Service); (2) direct costs incurred by the Service through payments to the states for the required data; (3) direct costs to hunters in the form of fees that some states charge them for the required HIP certification; (4) indirect costs to hunters for the time they spend obtaining HIP certification; (5) indirect costs to license vendors for uncompensated time they spend providing HIP certification to hunters; and, (6) direct costs to the Service to conduct the harvest surveys. This report attempts to quantify costs associated with those 6 categories.

STATE COSTS

Estimates of direct costs to the states were obtained from the International Association of Fish and Wildlife Agency's (IAFWA) HIP evaluation survey that all states responded to last year. One of the questions on that survey specifically asked for estimates of operating costs. Although most states provided cost estimates, several respondents indicated that not all costs were included in their estimates, and several states that did not provide an estimate indicated that it was impossible to isolate and quantify the costs of HIP within their overall licensing system. A few states did not give a reason for not providing an estimate. For those states that did not report a cost estimate, we derived approximations from states with similar HIP-certification systems, based on either the average cost per HIP certification for states that did provide estimates, or a "best guess." For states with electronic licensing systems that did not report a cost estimate, we based the estimates in this report on an overall cost of \$0.30 per HIP certification. For states with paper HIP-certification systems that did not provide cost estimates, we used an average cost of \$0.50 per HIP certification to derive cost estimates. Telephone and Internet HIP-certification systems cost an average of \$1.50 per certification. Thus, we obtained at least a "ball park" estimate of the gross costs of HIP for each state.

The state-specific gross cost estimates were reduced by the estimated amount the Service will pay the states annually for the HIP data. For any state that charges hunters a fee for HIP certification, we also reduced that state's gross cost by the total revenue gained by the state from the HIP fee. State revenue from HIP fees was

reported on the IAFWA survey. After making these adjustments to the gross cost estimates, the total annual net estimate of costs for all states combined was \$1,516,351 (see Table 1 for state-specific details). Given the tenuous nature of much of the information used to derive this figure, it should be viewed as a "ball park" estimate.

SERVICE PAYMENTS TO STATES

The Service pays the states on a per migratory bird hunter basis for the HIP data that the states collect. The annual payment is \$0.10 per migratory bird hunter record, and the total estimated cost to the Service, based on the number of migratory bird hunter records received for the 1999-2000 season, is \$318,550 (Table 1).

HUNTER COSTS

Hunters incur direct costs in states that charge a fee for HIP certification, and indirect costs in all states in terms of the time it takes them to obtain HIP certification. The Office of Management and Budget (OMB) requires federal agencies to report the impact of information collection procedures on the public by estimating "burden hours", i.e., the total number of hours spent by the public providing the required information. We used this method, and a value of \$8.00 per hour, to quantify the indirect costs to hunters (OMB's most recent time value that we know of is \$7.26 per hour, but that was 3 years ago).

The IAFWA survey asked each state to report the amount of time it takes for a hunter to obtain HIP certification for each of the methods of HIP certification available to the hunter in that state. We used this information, combined with the total number of HIP certifications issued in each state for the 1999-2000 season, to estimate the total number of hours hunters spent in each state obtaining HIP certification (see Table 2 for state-specific details). For states that did not provide a time estimate, we used the average of the time estimates provided by other states with similar HIP-certification procedures. We used only the time estimate for each state's primary HIP certification method to estimate the total time burden on hunters. The time estimate for all states combined is 109,265 burden hours, the value of which is a total of \$874,117 at \$8.00 per hour (Table 2). We then added the state HIP fee revenue to hunter cost estimates, but only up to the amount that equaled the state's HIP operating total costs. The total direct and indirect cost to hunters is estimated at \$1,019,572 annually. This estimate would obviously change if time was valued differently.

LICENSE VENDOR COSTS

We used the same data and methods to estimate burden hours incurred by license vendors as a result of providing HIP certification to hunters. Since states that have telephone and/or Internet HIP registration do not involve their license vendors in the process, the total estimated number of burden hours was lower at 81,219. We used a rate of \$12.00 per hour to estimate the value of the license vendors' time burden. We then reduced the state-specific vendor cost estimates by the amount of compensation the states pay their license vendors for HIP certifications, as reported by the states in the IAFWA survey. The total estimated cost to license vendors comes to \$743,922 (see Table 3 for state-specific details). Like the estimate of hunter costs, this estimate is dependent on the dollar value time is given.

SERVICE HIP SURVEY COSTS

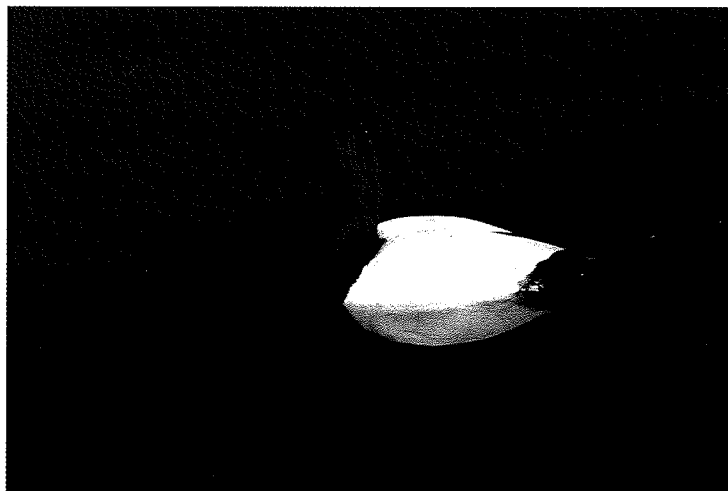
We based our estimate of the Service's survey costs on current HIP survey procedures and the expected sample sizes for all types of HIP harvest surveys combined (150,000). The total annual cost estimate of \$842,000 includes postage, printing, equipment maintenance, and personnel costs directly associated with conducting the HIP surveys.

SUMMARY

The total estimated annual cost of HIP, including the value of the time spent by hunters and license vendors on obtaining/providing HIP certification, is approximately \$4,441,000. This total includes state costs of about \$1,516,000, Service costs of about \$1,161,000, hunter costs of about \$1,020,000, and license vendor costs of about \$744,000. This should be considered a "ball park" estimate. Our goal was only to provide cost information, therefore, we do not have any recommendations to make based solely on the contents of this report.



Black duck. *USFWS photo by Glen Smart.*



Canvasback. *Photo by T. J. Moser.*

Table 1. Estimated state agency operating costs associated with the Harvest Information Program.

State	Reported direct cost	Fee	Revenue from fee	Cost minus fee revenue	Payment from Service	Net cost to state
Alabama	\$32,000			\$32,000	\$9,350	\$22,650
Alaska	\$15,000			\$15,000	\$950	\$14,050
Arizona	\$21,000	\$3.00	\$150,000	\$0	\$4,100	\$0
Arkansas	\$44,100*			\$44,100	\$14,700	\$29,400
California	\$163,000			\$163,000	\$15,800	\$147,200
Colorado	\$88,000			\$88,000	\$4,700	\$83,300
Connecticut	\$25,000	\$2.00	\$8,000	\$17,000	\$800	\$16,200
Delaware	\$13,500			\$13,500	\$900	\$12,600
Florida	\$25,000			\$25,000	\$4,150	\$20,850
Georgia	\$2,800			\$2,800	\$9,800	\$0
Idaho	\$1,000	\$1.50	\$31,000	\$0	\$2,700	\$0
Illinois	\$110,000			\$110,000	\$6,800	\$103,200
Indiana	\$51,990			\$51,990	\$3,300	\$48,690
Iowa	\$63,000			\$63,000	\$3,000	\$60,000
Kansas	\$25,000	\$0.50	\$0	\$25,000	\$5,700	\$19,300
Kentucky	\$30,565	\$4.00	\$180,000	\$0	\$1,550	\$0
Louisiana	\$115,000			\$115,000	\$14,350	\$100,650
Maine	\$5,000			\$5,000	\$6,750	\$0
Maryland	\$14,000			\$14,000	\$2,450	\$11,550
Massachusetts	\$10,000			\$10,000	\$550	\$9,450
Michigan	\$31,050*			\$31,050	\$10,350	\$20,700
Minnesota	\$100,000			\$100,000	\$10,800	\$89,200
Mississippi	\$6,000			\$6,000	\$5,800	\$200
Missouri	\$20,400*	\$6.00	\$408,000	\$0	\$6,800	\$0
Montana	\$4,211			\$4,211	\$1,700	\$2,511
Nebraska	\$65,000			\$65,000	\$4,700	\$60,300
Nevada	\$16,000			\$16,000	\$1,000	\$15,000
New Hampshire	\$4,000			\$4,000	\$1,400	\$2,600
New Jersey	\$22,500			\$22,500	\$1,300	\$21,200
New Mexico	\$10,000**	\$1.00	\$0	\$10,000	\$1,750	\$8,250
New York	\$56,000			\$56,000	\$3,650	\$52,350
North Carolina	\$66,000*			\$66,000	\$9,000	\$57,000
North Dakota	\$59,000			\$59,000	\$5,200	\$53,800
Ohio	\$1,000			\$1,000	\$10,900	\$0
Oklahoma	\$30,000**			\$30,000	\$4,150	\$25,850
Oregon	\$1,000			\$1,000	\$5,650	\$0
Pennsylvania	\$31,700	\$3.00	\$259,975	\$0	\$10,850	\$0
Rhode Island	\$2,000			\$2,000	\$200	\$1,800
South Carolina	\$45,000**			\$45,000	\$9,500	\$35,500
South Dakota	\$20,000	\$3.00	\$132,000	\$0	\$4,600	\$0
Tennessee	\$36,150*			\$36,150	\$12,050	\$24,100
Texas	\$236,550*			\$236,550	\$54,000	\$182,550
Utah	\$50,000			\$50,000	\$3,200	\$46,800
Vermont	\$4,000**			\$4,000	\$750	\$3,250
Virginia	\$60,000			\$60,000	\$4,450	\$55,550
Washington	\$25,000			\$25,000	\$4,650	\$20,350
West Virginia	\$4,000			\$4,000	\$300	\$3,700
Wisconsin	\$48,750*			\$48,750	\$16,250	\$32,500
Wyoming	\$3,400			\$3,400	\$1,200	\$2,200
Total	\$1,913,666			\$1,781,001	\$318,550	\$1,516,351

* Estimated cost \$0.30 per name, based on other states' electronic licensing system reported costs.

** Estimated cost \$0.50 per name, based on other states' reported costs for similar system.

Table 2. Estimated migratory game bird hunter costs associated with the Harvest Information Program.

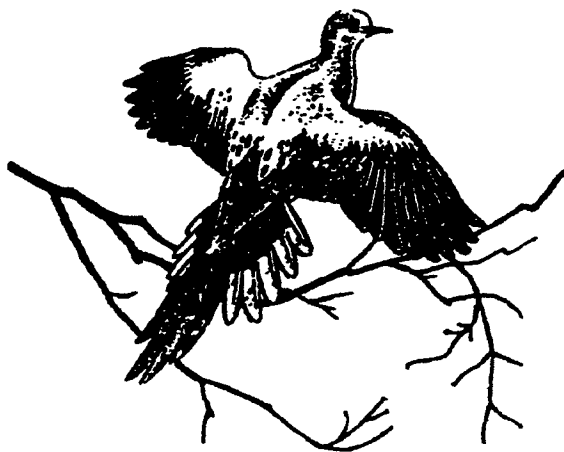
State	HIP certifications	Hunter burden hours	Burden hours value *	State costs covered by hunter fees	Total
Alabama	95,000	2,375	\$19,000		\$19,000
Alaska	9,500	317	\$2,533		\$2,533
Arizona	50,000	3,333	\$26,667	\$21,000	\$47,667
Arkansas	147,000	4,900	\$39,200		\$39,200
California	158,000	6,583	\$52,667		\$52,667
Colorado	60,000	4,000	\$32,000		\$32,000
Connecticut	8,000	667	\$5,333	\$8,000	\$13,333
Delaware	9,000	600	\$4,800		\$4,800
Florida	80,000	1,333	\$10,667		\$10,667
Georgia	100,000	1,667	\$13,333		\$13,333
Idaho	27,000	450	\$3,600	\$1,000	\$4,600
Illinois	68,000	4,533	\$36,267		\$36,267
Indiana	33,000	2,750	\$22,000		\$22,000
Iowa	30,000	2,000	\$16,000		\$16,000
Kansas	57,000	4,750	\$38,000		\$38,000
Kentucky	45,000	2,250	\$18,000	\$30,565	\$48,565
Louisiana	143,500	3,588	\$28,700		\$28,700
Maine	67,500	563	\$4,500		\$4,500
Maryland	45,000	1,500	\$12,000		\$12,000
Massachusetts	5,500	458	\$3,667		\$3,667
Michigan	103,500	2,588	\$20,700		\$20,700
Minnesota	180,000	4,500	\$36,000		\$36,000
Mississippi	60,000	1,000	\$8,000		\$8,000
Missouri	68,000	1,133	\$9,067	\$20,400	\$29,467
Montana	17,000	850	\$6,800		\$6,800
Nebraska	47,000	3,133	\$25,067		\$25,067
Nevada	10,000	667	\$5,333		\$5,333
New Hampshire	14,000	700	\$5,600		\$5,600
New Jersey	13,000	542	\$4,333		\$4,333
New Mexico	17,500	875	\$7,000		\$7,000
New York	36,500	1,521	\$12,167		\$12,167
North Carolina	220,000	5,500	\$44,000		\$44,000
North Dakota	52,000	1,300	\$10,400		\$10,400
Ohio	109,000	2,725	\$21,800		\$21,800
Oklahoma	60,000	2,000	\$16,000		\$16,000
Oregon	56,500	1,883	\$15,067		\$15,067
Pennsylvania	108,500	2,713	\$21,700	\$31,700	\$53,400
Rhode Island	2,000	133	\$1,067		\$1,067
South Carolina	95,000	1,583	\$12,667		\$12,667
South Dakota	46,000	1,533	\$12,267	\$20,000	\$32,267
Tennessee	120,500	1,004	\$8,033		\$8,033
Texas	788,500	9,856	\$78,850		\$78,850
Utah	32,000	2,133	\$17,067		\$17,067
Vermont	7,500	125	\$1,000		\$1,000
Virginia	44,500	3,708	\$29,667		\$29,667
Washington	46,500	775	\$6,200		\$6,200
West Virginia	3,000	150	\$1,200		\$1,200
Wisconsin	162,500	5,417	\$43,333		\$43,333
Wyoming	12,000	600	\$4,800		\$4,800
Total	3,770,500	109,265	\$874,117	\$145,455	\$1,019,572

* Value calculated based on \$8.00 per hour.

Table 3. Estimated license vendor costs associated with the Harvest Information Program.

State	HIP certifications	Vendor burden hours	Burden hours value *	Vendor compensation		Net value of vendor burden
				Per name	Total	
Alabama	95,000	2,375	\$28,500	\$0.10	\$9,500	\$19,000
Alaska	9,500	317	\$3,800		\$0	\$3,800
Arizona	50,000	3,333	\$40,000	\$0.15	\$7,500	\$32,500
Arkansas	147,000	4,900	\$58,800	\$0.10	\$14,700	\$44,100
California	158,000	6,583	\$79,000	\$0.15	\$23,700	\$55,300
Colorado	60,000				\$0	\$0
Connecticut	8,000	667	\$8,000	\$1.00	\$8,000	\$0
Delaware	9,000				\$0	\$0
Florida	80,000	1,333	\$16,000		\$0	\$16,000
Georgia	100,000	1,667	\$20,000		\$0	\$20,000
Idaho	27,000	450	\$5,400	\$0.75	\$20,250	\$0
Illinois	68,000				\$0	\$0
Indiana	33,000				\$0	\$0
Iowa	30,000				\$0	\$0
Kansas	57,000	4,750	\$57,000	\$0.50	\$28,500	\$28,500
Kentucky	45,000	2,250	\$27,000	\$0.25	\$11,250	\$15,750
Louisiana	143,500	3,588	\$43,050		\$0	\$43,050
Maine	67,500	563	\$6,750		\$0	\$6,750
Maryland	45,000	1,500	\$18,000	\$0.35	\$15,750	\$0
Massachusetts	5,500				\$0	\$0
Michigan	103,500	2,588	\$31,050		\$0	\$31,050
Minnesota	180,000	4,500	\$54,000		\$0	\$54,000
Mississippi	60,000	1,000	\$12,000	\$0.10	\$6,000	\$6,000
Missouri	68,000	1,133	\$13,600	\$1.00	\$68,000	\$0
Montana	17,000	850	\$10,200	\$0.50	\$8,500	\$0
Nebraska	47,000				\$0	\$0
Nevada	10,000				\$0	\$0
New Hampshire	14,000				\$0	\$0
New Jersey	13,000				\$0	\$0
New Mexico	17,500	875	\$10,500	\$1.00	\$17,500	\$0
New York	36,500				\$0	\$0
North Carolina	220,000	5,500	\$66,000	\$0.10	\$22,000	\$44,000
North Dakota	52,000				\$0	\$0
Ohio	109,000	2,725	\$32,700		\$0	\$32,700
Oklahoma	60,000	2,000	\$24,000		\$0	\$24,000
Oregon	56,500	1,883	\$22,600		\$0	\$22,600
Pennsylvania	108,500	2,713	\$32,550	\$1.00	\$108,500	\$0
Rhode Island	2,000	133	\$1,600		\$0	\$1,600
South Carolina	95,000	1,583	\$19,000		\$0	\$19,000
South Dakota	46,000	1,533	\$18,400		\$0	\$18,400
Tennessee	120,500	1,004	\$12,050		\$0	\$12,050
Texas	788,500	9,856	\$118,272		\$0	\$118,272
Utah	32,000				\$0	\$0
Vermont	7,500	125	\$1,500		\$0	\$1,500
Virginia	44,500				\$0	\$0
Washington	46,500	775	\$9,300	\$0.25	\$11,625	\$0
West Virginia	3,000	150	\$1,800		\$0	\$1,800
Wisconsin	162,500	5,417	\$65,000		\$0	\$65,000
Wyoming	12,000	600	\$7,200		\$0	\$7,200
Total	3,770,500	81,219	\$974,622		\$381,275	\$743,922

* Value calculated based on \$12.00 per hour.

Appendix A.**Harvest Information Program (HIP) Survey**

**Migratory Shore and Upland Game Bird Working Group
of
The Migratory Wildlife Committee**

International Association of Fish and Wildlife Agencies



HARVEST INFORMATION PROGRAM (HIP) SURVEY

(International Association of Fish and Wildlife Agencies)

This survey is part of an evaluation of HIP. Your input is essential to help ensure that HIP fulfills its mandate to provide quality migratory bird harvest information.

Name of State Agency: _____	
Name of person coordinating survey: _____	
Title of person coordinating survey: _____	
Address: _____	
Phone Number: _____	E-mail Address: _____

Please use the following definitions when filling out this survey:

- ▶ ***License vendors*** *(also called license agents or license deputies in some states) refers to the locations where hunting licenses are sold. For example, if Wal-Mart has 15 stores where licenses are sold, each of those 15 stores should be considered a separate license vendor. If an individual store has several check-out counters where licenses are sold, the store still only counts as one license vendor.*
- ▶ ***Chain stores*** *include national, regional, or local chains that have more than one license vendor in your state such as gas stations, sporting good stores, or department stores.*
- ▶ ***HIP certification*** *is any process used by a state to identify migratory bird hunters and issues them proof of compliance with the HIP requirement.*
- ▶ ***HIP permit*** *refers to any separate migratory bird permit or migratory bird stamp that is used by a state to identify migratory bird hunters, HIP-certify them, and provide them with proof of compliance with the HIP requirement.*

If you need additional space to answer open-ended questions or to clarify your responses, please attach additional pages as needed.

Please check the appropriate answer or fill in the blank.

1. Does your state use the following types of sport license systems:

Yes No



- ☐ ☐ Automated online
☐ ☐ Automated store & forward
☐ ☐ Manual universal
☐ ☐ Manual multiple books
☐ ☐ Telephone
☐ ☐ Internet
☐ ☐ Other

If other, please specify _____

2. Does your state HIP certify hunters at any of your state agency offices (state agency license vendors)?

☐ No → (Skip to Question 4)

☐ Yes



3. How many state agency license vendors do you have?

_____ *number of state agency vendors*

4. Including your state agency license vendors, approximately how many vendors offer HIP in your state?

_____ *number of vendors*

5. Have you compared the quality of your state license vendors' data with that of your other vendors?

☐ No → (Skip to Question 7)

☐ Yes



6. Was your state data:

- ☐ Better than other vendors' data
☐ Same as other vendors' data
☐ Worse than other vendors' data

If you have a report or other analysis that compares your agency outlets with other vendors, please append it to this survey.

7. How often do you typically use the following methods to contact your vendors?

Daily Weekly Monthly or less Never
 ▼ ▼ ▼ ▼

- Letter ☐ ☐ ☐ ☐
 Newsletter ☐ ☐ ☐ ☐
 E-mail ☐ ☐ ☐ ☐
 Automated system message ... ☐ ☐ ☐ ☐
 Agency employee . ☐ ☐ ☐ ☐
 Other ☐ ☐ ☐ ☐

If other, please specify _____

8. Does your state agency contact its vendors in the following ways:

Yes No



- ☐ ☐ With the person directly issuing licenses
☐ ☐ With the person in charge of others who issue licenses
☐ ☐ With the store owner/manager
☐ ☐ With corporate headquarters
☐ ☐ With a third party such as another agency, sheriff, county clerk, etc.

9. Please indicate if your state agency assesses the quality of vendors' HIP data using any of the following methods:

Yes No



- ☐ ☐ Look for suspicious patterns in data
☐ ☐ Systematic monitoring by agency staff
☐ ☐ Incidental observations by agency staff
☐ ☐ Follow-up on citizen complaints
☐ ☐ Other

If other, please specify _____

10. Can your state agency identify each individual vendor in your state?

- ☐ No
☐ Yes

11. Can your state agency link the HIP certification data to the vendor who issued the certification?

- ☐ No
☐ Yes

12. Does your state verify names and addresses at the time a hunter certifies with HIP?

- ☐ No
☐ Yes

13. Does your agency link HIP hunters with name and address information in a separate database (e.g., drivers license)?

- ☐ No → (Skip to Question 15)
☐ Yes ↓

14. How frequently are individual hunter names/addresses updated in the other database?

_____ frequency of updates

15. Does your state have a penalty for vendors who do not HIP certify migratory bird hunters?

- ☐ No → (Skip to Question 19)
☐ Yes ↓

16. How many vendors are penalized each year?

_____ number penalized

17. In general, have the penalties improved compliance?

- ☐ No
☐ Yes
☐ Don't know

18. Describe the penalties your state agency has used: _____

19. Does your state have a penalty for vendors who HIP certify hunters but do not send in HIP data (names, addresses, etc.)?

- ☐ No → (Skip to Question 22)
☐ Yes ↓

20. How many vendors are penalized each year?

_____ number penalized

21. In general, have penalties improved compliance?

- ☐ No
☐ Yes
☐ Don't know

22. Does your state agency give vendors a separate commission for issuing HIP certification?

- ☐ No → (Skip to Question 25)
☐ Yes ↓

23. What is the commission?

_____ dollars

24. Is there a difference between the commission for HIP certification and the standard vendor commission for issuing state licenses?

- ☐ No
☐ Yes

25. Has your state estimated the proportion of migratory bird hunters that were HIP certified?

- ☐ No → (Skip to Question 29)
☐ Yes ↓

26. What year(s) did the estimate cover?

Year(s) _____

27. What method did your state agency use to estimate the proportion that was HIP certified?

Yes No



- ☐ ☐ Survey of all hunters, including exempt hunters
- ☐ ☐ Survey of licensed hunters (not just HIP certified hunters)
- ☐ ☐ Survey of certified HIP hunters
- ☐ ☐ General population survey
- ☐ ☐ Other

If other, please specify _____

28. What percentage of each of the following types of hunters were HIP certified?

Dove hunters..... percent

Waterfowl hunters..... percent

Woodcock hunters..... percent

Rail hunters..... percent

All migratory bird hunters... percent

29. Have law enforcement personnel in your state kept track of the proportion of migratory bird hunters they checked in the field that were HIP certified?

☐ No → (Skip to Question 32)

☐ Yes

30. What year(s) were they checked?

Year(s) _____

For each year, how many hunters were checked and what percentage were HIP certified?

	Number checked ▼	Percent certified ▼
31a. Year _____		
Dove hunters.....	_____	_____
Waterfowl hunters.....	_____	_____
Woodcock hunters.....	_____	_____
Rail hunters.....	_____	_____
All migratory bird hunters...	_____	_____

	Number checked ▼	Percent certified ▼
31b. Year _____		
Dove hunters.....	_____	_____
Waterfowl hunters.....	_____	_____
Woodcock hunters.....	_____	_____
Rail hunters.....	_____	_____
All migratory bird hunters...	_____	_____

Please attach additional pages if needed.

32. After implementing HIP, did your state continue its harvest surveys for:

- ☐ All species that were previously surveyed
- ☐ Some of the species that were previously surveyed.
- ☐ None of the species that were previously surveyed. → (Skip to Question 36)

33. Since HIP was implemented in your state, has of your state harvest survey methodology changed?

☐ No ———→ (Skip to Question 36)

☐ Yes

34. Was the change the result of implementing HIP?

☐ No

☐ Yes

35. If problems were encountered when changing to HIP, how were they resolved?

36. Please describe any positive and/or negative impacts HIP had on your state harvest survey(s) (e.g., cost savings, additional costs, improved efficiency, reduced efficiencies, etc.).

Positive: _____

Negative: _____

37. When a migratory bird hunter is obtaining HIP certification in your state, does the hunter supply information for the screening questions through the following methods?

Yes No



☐ ☐ Internet

☐ ☐ In-person form completed by vendor

☐ ☐ In-person form completed by hunter

☐ ☐ Automated telephone system

☐ ☐ Telephone system with "live" operator

☐ ☐ Point-of-sale operated by vendor

☐ ☐ Point-of-sale operated by hunter

☐ ☐ Other by vendor

If other, please specify: _____

☐ ☐ Other by hunter:

If other, please specify: _____

39. Does your state conduct any other surveys at the time of license purchase.

☐ No

☐ Yes

40. Do vendors ask hunters screening questions when they are HIP certifying them ?

☐ Our state does not utilize vendors to HIP certify hunters ———→ (Skip to Question 44)

☐ No ———→ (Skip to Question 44)

☐ Yes ———→ (Go to Question 41)

41. Does your agency use any of the following methods to ensure that hunters going through the HIP certification process with vendors have the opportunity to verify that the answers to the screening questions are recorded completely and accurately by vendors?

No Yes



☐ ☐ Have a computer monitor facing the hunter so they can see the answers as they are being recorded

☐ ☐ Provide hunters with a printed copy of the information they have provided to vendor in the screening process

☐ ☐ Other

If other, please specify: _____

42. Does your agency evaluate the effectiveness of these methods?

☐ No ———→ (Skip to Question 44)

☐ Yes



43. How do you evaluate the effectiveness of these methods?

44. Please check the box that best indicates your state's assessment of how well the U.S. Fish and Wildlife Service harvest estimates compare to "reality" for the following species:

	Very Close ▼	Close ▼	Distant ▼	Very Distant ▼	Don't Know ▼
Ducks.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geese.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Doves.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Woodcock.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Snipe.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coots.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rails.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

45. Please check the box that best indicates your state's assessment of how well the U.S. Fish and Wildlife Service estimates of hunter numbers compares to "reality" for the following species:

	Very Close ▼	Close ▼	Distant ▼	Very Distant ▼	Don't Know ▼
Ducks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Doves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Woodcock ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Snipe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coots	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

46. Please check the box that best indicates your state's assessment of how well the U.S. Fish and Wildlife Service estimates of days hunted compares to "reality" for the following species:

	Very Close ▼	Close ▼	Distant ▼	Very Distant ▼	Don't Know ▼
Ducks.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geese.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Doves.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Woodcock.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Snipe.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coots.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rails.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

47. How does your state determine "reality" in questions 41, 42 and 43?

48. Do you have state migratory bird hunting estimates of the following for 1998 or 1999?

	1998		1999	
	No ▼	Yes ▼	No ▼	Yes ▼
harvest information...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
hunter numbers.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
days hunted.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have a report or other analysis about migratory bird hunting harvest information, hunting numbers, or days hunted, for 1998 and/or 1999, please append it to this survey.

49. Please complete this matrix.

Migratory bird hunter group	Does your state exempt these migratory bird hunter groups from purchasing a hunting license		Does your state exempt these migratory bird hunter from the HIP certification process		Does your state have estimates for the number of these migratory bird hunters groups that are exempt from HIP	
	YES	NO	YES	NO	YES	NO
Seniors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	(If yes, above age? _____)		(If yes, above age? _____)		(If yes, above age? _____)	
Juniors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	(If yes, below age? _____)		(If yes, below age? _____)		(If yes, below age? _____)	
Landowners hunting on their own land	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other landowners	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Veterans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Disabled veterans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Persons with disabilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Please specify _____ _____ _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If your state has any reports, analysis, or information about estimates of numbers of exempt migratory bird hunters, please append to this survey.

50. Please indicate how much your state believes the following sources of bias affect the accuracy of estimates obtained from HIP data:

	High Impact	Medium Impact	Low Impact	Don't Know
A. Not having all names and addresses in the sampling frame due to exempt hunters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Not having all names and addresses in the sampling frame due to people not registering even though they are not exempt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Not having all names and addresses in the sampling frame due to HIP certification processing problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Not having correct screening information due to agent issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Including people in the sampling frame that do not intend to hunt migratory birds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Memory bias of survey respondents selected by the U.S. Fish and Wildlife Service (e.g., this source can be due to a person including hunts from previous years or simply recording more or less birds than truly harvested) ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Non-response to all U.S. Fish and Wildlife Service mailings and follow-ups by selected persons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Errors in coding and data entry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Inaccuracies in analysis or inappropriate analyses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Misinterpretation of results or definitions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Other sources of bias: <i>Please specify</i> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

51. Please complete the following matrix for all of the major chain store vendors in your state (e.g., Wal-Mart, K-Mart, Bass Pro Shops, Texaco, etc.). For this table, please consider your state agency to be a major chain store.

[illegible]

52. How much does it cost your agency annually to operate the following HIP certification system(s)?

Note: Please report only those costs that are specific to HIP; costs associated with operating your state's license system should not be included.

\$ _____ Telephone
 \$ _____ Internet
 \$ _____ Separate migratory bird or HIP permit or stamp
 \$ _____ Electronic point-of-sale licensing
 \$ _____ HIP included on regular paper license or license application form
 \$ _____ Other

If other, please specify _____

53. Does your state include the following in your annual cost estimate(s)?

Yes ▼	No ▼	
<input type="checkbox"/>	<input type="checkbox"/>	Contractor fees
<input type="checkbox"/>	<input type="checkbox"/>	Telephone charges
<input type="checkbox"/>	<input type="checkbox"/>	Web site maintenance
<input type="checkbox"/>	<input type="checkbox"/>	Printing and distribution of forms
<input type="checkbox"/>	<input type="checkbox"/>	Printing and distribution of mailing envelopes
<input type="checkbox"/>	<input type="checkbox"/>	Postage fees
<input type="checkbox"/>	<input type="checkbox"/>	Maintenance of capital equipment
<input type="checkbox"/>	<input type="checkbox"/>	Supplies (for example, license stock)
<input type="checkbox"/>	<input type="checkbox"/>	License vendor compensation/fees
<input type="checkbox"/>	<input type="checkbox"/>	Help desk/hotline for license vendors
<input type="checkbox"/>	<input type="checkbox"/>	Data entry
<input type="checkbox"/>	<input type="checkbox"/>	Data formatting and data clean-up
<input type="checkbox"/>	<input type="checkbox"/>	Record keeping
<input type="checkbox"/>	<input type="checkbox"/>	Other staff time
<input type="checkbox"/>	<input type="checkbox"/>	Publicizing/explaining HIP to hunters
<input type="checkbox"/>	<input type="checkbox"/>	Publicizing/explaining HIP to vendors
<input type="checkbox"/>	<input type="checkbox"/>	Other

If other, please specify: _____

☐ ☐ Other

If other, please specify: _____

☐ ☐ Other:

If other, please specify: _____

54. About how many minutes does it take on average for a hunter to complete the HIP certification process in your state using the following methods?

_____ Telephone
 _____ Internet
 _____ Separate migratory bird or HIP permit or stamp
 _____ Electronic point-of-sale licensing
 _____ HIP included on regular paper
 _____ Other

If other, please specify _____

55. Are hunters charged a fee for HIP certification?

☐ No → (Skip to Question 58)

☐ Yes ↓

56. What is the fee charged per hunter?

_____ dollars

57. What is your state's total revenue from HIP fees?

_____ dollars

58. Do you have any recommendations for improving the performance of large chain-type stores in certifying for HIP?

58. Please evaluate the positive and/or negative aspects of your state's HIP program from a permitting/licensing perspective.

Positive: _____

Negative: _____

59. How can the national HIP program be improved?

60. How can the national HIP program be improved?

61. Has your state agency undertaken any efforts to educate migratory bird hunters about HIP?

☐ No → (Skip to Question 63)

☐ Yes



62. Please provide examples of you state's efforts to educate migratory bird hunters:

63. Has your state agency undertaken any efforts to educate your state's license vendors about HIP?

☐ No

☐ Yes



64. Please provide examples of your state's efforts educate your state's license vendors:

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!

Please use the spaces below to provide any comments about this survey or any additional comments on HIP.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

Please return the following:

- 1) The completed questionnaire;**
- 2) Any report or other analysis that compares your agency outlets with other vendors;**
- 3) Any report or other analysis about migratory bird harvest information, hunter numbers, or days hunted;**
- 4) Any report or other analysis about estimates of numbers of exempt migratory bird hunters;**
- 5) Your responses to open-ended questions that did not fit in the spaces provided.**

Please return the survey by Nov 17, 2000 to:

Richard Elden, 6152 Keeney Dr., Six Lakes, MI, 48886.

If you have any questions, please call Richard Elden, 517-365-3138.