

**Supporting Statement B for
Paperwork Reduction Act Submission**

OMB Control Number 1018-0124

**Migratory Bird Subsistence Harvest Household Survey
Forms 7-FW-100, 7-FW-101, 7-FW-102, 7-FW-103, 7-FW-103a, and 7-FW-103b**

- 1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g., establishments, State and local government units, households, or persons) in the universe covered by the collection and in the corresponding sample are to be provided in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection had been conducted previously, include the actual response rate achieved during the last collection.**

The potential respondent universe is up to 23,000 households, located in up to 182 communities in the subsistence eligible areas of Alaska. The geographic strata and households in the current subsistence eligible areas are as follows:

	Number of Villages	Number of households
Yukon-Kuskokwim Delta		
South Coast Villages	5	419
Mid Coast Villages	9	804
North Coast Villages	4	457
Kuskokwim River Villages	13	1013
Yukon River Villages	6	521
Bethel	1	1333
Central Kuskokwim	6	145
Bering Strait		
Mainland villages	12	1052
Nome	1	696
St.Lawrence/Diomedede Islands	3	312
Northwest Arctic		
Villages	10	870
Kotzebue	1	889
Interior		
Koyukuk NWR	7	531
Kanuti NWR	5	97
Innoko NWR	7	296
Yukon Flats NWR (CATG)	10	468
Yukon Flats NWR (Central)	1	65
Upper Tanana		
Villages	6	161
Tok	1	354
Other Interior	5	418

North Slope Borough		
Villages	7	733
Barrow	1	1371
Bristol Bay		
Togiak NWR	6	487
Alaska Peninsula/Becharof NWR	8	186
Bristol Bay Native Assn. Villages	15	917
Dillingham	1	793
Aleutian-Pribilof		
Villages	10	797
Unalaska	1	834
Kodiak		
Villages	6	384
Road-Connected	1	4108
Chugach	4	175
Copper River Basin	8	215
Tyonek	1	66
Totals, current subsistence eligible areas being surveyed	173	21,967

The sampling methods being used are stratified random sampling, both by geographic strata, or clusters, according to the regions and communities listed above, and by activity strata, similar to what is used in the national Migratory Bird Harvest Information Program (HIP) survey, which is approved under OMB control number 1018-0015. For each of the 182 villages, households are categorized according to activity level (see forms 7-FW-100 and 7-FW-101) and each activity level is sampled at a different sampling rate. Highest (40%) sampling rates are applied to the households in the "High" category, lower rates (15%) in the "Low" category, and lowest sampling rates (10%) in the "None" category. In very small villages and in communities where there is very little hunting, there may be only two strata: hunting and nonhunting households.

The number of households in the universe covered by the collection and in the corresponding sample, are shown in tabular form, above, as well as the geographic strata in the proposed sample.

The activity strata for the universe and for the sample are shown in Table 1. In some cases, information is missing. In these cases, either the village was not stratified or a census was attempted and conducted.

Table 2 shows village and household response rates for 2002, 2004, and 2005. We expect future response rates to be similar and to improve over time.

Our Statewide survey employs a two-stage sampling design. Some regions are considered strata, others regions are divided into several strata (see above list, which lists each stratum). Within each stratum, two-thirds of the villages are picked to be sampled based on statistical goals for acceptable variance. This decision to sample two-thirds of the villages within each stratum was made after a statistical analysis of data from the Yukon Delta National Wildlife Refuge and Bristol Bay was conducted in 2002. This analysis showed that sampling more than two-thirds of the villages within each stratum would not increase precision by an appreciable amount.

The villages in each stratum are numbered 1, 2, and 3, with the 1's and 2's sampled in Year 1 (which in as many cases as possible was 2004). The 2's and 3's are sampled in Year 2, and the 1's and 3's sampled in Year 3. That way, each village gets sampled every other year that a survey is conducted in that region (stratum).

In each of the villages scheduled to be sampled, the households are stratified by hunting activity level: High, Low, None, using Forms 7-FW-100 and 7-FW-101. Then after the survey forms are collected, the results are expanded for each village based on the information on Form 7-FW-101. The estimates for each village in the geographic stratum are added together, and then expanded to come up with an estimate for the geographic stratum. If household activity stratification information is available for the nonsurveyed villages in the geographic stratum, then household average harvests per activity stratum for the surveyed villages were applied to the nonsurveyed villages to make the estimate. If no activity stratification information was available for the nonsurveyed villages, the estimates for the non-surveyed villages were based on the average household harvest for the surveyed communities.

Table 2 shows the units (geographic strata) with the villages and households attempted, the villages and households sampled, and the village and household response rates by geographic strata. It also shows the product of the village/household response rates, and the overall response rate, which is 71 percent for 2002, 63 percent for 2004, and 73 percent for 2005.

It is noteworthy that more villages were attempted to be sampled in 2002 than in 2004 or 2005 (no survey was conducted in 2003). In 2002, we surveyed certain regions of the State more intensively because we were not yet attempting to conduct a Statewide survey. We began attempting to survey two-thirds of the villages in each region (stratum) in 2004, when the Statewide survey methodology explained was implemented. It should be noted also, that the Alaskan hub communities of Bethel, Dillingham, Nome, Kotzebue, Barrow, Tok, Kodiak, and Unalaska are considered their own strata and are surveyed every year that their region is surveyed.

Since implementation of the Statewide survey in 2004, only 1 year of data (2004) have been analyzed. The Alaska Migratory Bird Co-Management Council's subsistence harvest survey technical committee is continuing to meet and, as more years' data are analyzed, will evaluate whether and to what extent the present statistical methodology described above is still the best way to conduct the survey.

2. Describe the procedures for the collection of information including:

- * **Statistical methodology for stratification and sample selection,**
- * **Estimation procedure,**
- * **Degree of accuracy needed for the purpose described in the justification,**
- * **Unusual problems requiring specialized sampling procedures, and**
- * **Any use of periodic (less frequent than annual) data collection cycles to reduce burden.**

See description of stratification and sampling methodology described above. The statistical method for stratification is to stratify both by geography and by hunter activity level. Stratifying subsistence eligible areas of Alaska into regions and subregions within regions, which tend to have similar ecological characteristics, similar bird species, and similar bird availabilities, increases the likelihood that expansion of sampled villages to nonsampled villages will correctly approximate the harvest for the region. The stratification by hunting activity level helps ensure that we target the hunters who take the most birds, but still provides for sampling the low hunters and nonhunters. It also ensures that we do not miss the most active hunters when we

pick the sample households. In Alaska Native villages, a few hunters often hunt for the entire village, sharing their catch with elders and/or nonhunting families. In a simple random sample, these hunters could easily be missed, thus distorting estimates and comparisons of estimates by region and across time. For example, if the active hunters are drawn in some years but not in others, it can cause yearly estimates to fluctuate more extremely than is actually the case. Thus, greatest accuracy and precision is gained by stratifying both by geography and by activity.

In each village, for each hunting category, the results from the sampled households are expanded to come up with an estimate for all the households in that hunting category. Then the total estimates for each hunting category are added together to come up with a total estimate for the village. After this, the estimates for each surveyed village in the stratum are applied to each nonsurveyed village in the stratum.

In planning for a Statewide survey, a statistical analysis of data from the Yukon Delta National Wildlife Refuge and Bristol Bay was conducted in 2002. The decision to sample two-thirds of the villages within each stratum was made as a result of this statistical analysis, which showed that sampling more than two-thirds of the villages within each stratum would not increase precision by an appreciable amount.

However, to achieve the degree of accuracy needed, it was necessary to attempt to sample two-thirds of the villages in each geographic stratum, and not just one or two. In 2004, two regions (geographic strata) for which surveys were conducted, had only one village participate. Even though precision levels in these two regions were similar to those in regions where more villages participated, estimates for these two regions are too inaccurate to be used.

The overall harvest estimate for Alaska and estimates by region of Alaska (11 regions) is the primary focus of this survey. We believe the surveying for each subgroup (region) is designed to have adequate sample sizes. Precision levels for the 2004 data compared with earlier data, are in the process of being determined.

For certain species for which there are special concerns (i.e. interior Alaska white-fronts, spectacled and Steller's eiders, and the Service's list of Birds of Conservation Concern) more intensive sampling procedures may occur in the future, in narrowly defined areas and at very specific times. These methodologies will be identical to those described here, but may involve sampling more or all of the villages in the area, and more households by using higher sampling rates for each harvest activity level

In 2005, we conducted more intensive sampling procedures, as described here, in certain villages in the North Slope region. This was due to special concerns about spectacled and Steller's eiders, both listed as threatened species under the Endangered Species Act. We used the same survey forms (Form 7-FW-103) but we sampled all households in the villages of Point Hope, Wainwright, and Point Lay, and about 25% of the households in Barrow.

Surveys must be conducted annually to adequately monitor the effect of that year's subsistence hunting on the status of migratory birds. Migratory bird populations can change substantially between years as a result of droughts, floods, freezes, or other conditions. Subsistence harvests can vary substantially from year to year based on bird migration patterns, socioeconomic factors, and river and sea ice conditions which affect access to birds. Annual subsistence harvest estimates may be used alongside annual estimates of national harvest (Migratory Bird Harvest Information Program, or HIP) as part of the annual promulgation of both recreational and subsistence hunting regulations.

3. Describe methods to maximize response rates and to deal with issues of non-response. The accuracy and reliability of information collected must be shown to be adequate for intended uses. For collections based on sampling, a special justification must be provided for any collection that will not yield "reliable" data that can be generalized to the universe studied.

In the subsistence harvest survey, we first try to maximize village and household participation rates, which is what determines who actually receives a survey form. This is accomplished by explaining the purposes of the harvest survey at both the village and household level. The purposes are explained in terms of the Migratory Bird Treaty Act, the Fish and Wildlife Act of 1956, and the Migratory Bird Treaty Act Protocol Amendment, as well as the peoples' economic and cultural need to continue subsistence hunting, which is based on healthy migratory bird populations and habitats. The Service's Refuge Information Technicians and contractors carry out these tasks at village council meetings. The Service and the Alaska Migratory Bird Co-Management Council also encourage villages and households to participate in the survey through media outreach.

Once a village or community has agreed to participate in the survey, the surveyor asks each selected household for permission using Form 7-FW-102, the Household Permission Slip. The surveyor then notes a Yes or a No on the permission slip. Each household with a Yes permission slip is given a survey form. If the household says No, the surveyor selects an alternate household and follows the same procedure.

Replacement households, or alternate households, are selected as follows:

Forms 7-FW-100 and 7-FW-101 are accompanied by a transparent mylar overlay which is designed to fit over Form 7-FW-101. Each overlay has different randomly generated and numbered clear areas, light gray areas, and dark gray areas. The overlay has instructions on it for selecting the households and for selecting the alternate households if a household decides not to participate. Each overlay is designed for selecting 10 percent of the "None" households, 15 percent of the "Low" households, and 40 percent of the "High" households. Sometimes these percentages are higher if there are not enough households in any one column to generate a statistically valid estimate. The overlay also contains instructions on how many households to select if there are not enough in the column to generate the estimate.

During training of the survey coordinators, we stress to always use alternates in the order selected. The material we use for survey training and distribute to all survey field coordinators includes the following paragraph:

If a household decides not to participate, select an alternate from the same activity level column. The alternate selected should be in a light gray box with the lowest available box number. In the ANONE or ALLOW columns, if the households in the gray boxes have already been selected, then pick a household in a black box with the lowest available box number, for the alternate. As in previous years, remember to use the alternates in the order selected: lowest box number to highest box number. If more households say No, or if some of the alternates say "no" as well, more alternates will be needed.

Thus, response rates from selected households and selected alternate households who agree to participate in the survey and who actually have forms in hand are determined by 1) efficacy of the surveyor in finishing the job by picking up all correctly numbered forms, and 2) cooperation of households in filling out and turning in the forms. The Service's surveyor training and

outreach, as described above, are the two methods used to maximize these two response variables.

On national wildlife refuges, where over one-half of the migratory bird subsistence harvest occurs, the harvest survey occurs within the context of a larger migratory bird outreach program conducted by the Refuge Information Technicians. This outreach program, which has been conducted on the Yukon Kuskokwim Delta since the mid 1980s and on other refuges since the early to mid 1990's, explains the need to conserve the birds as the basis for the long-term continuation and viability of subsistence hunting.

In the subsistence eligible areas, which are outside of national wildlife refuges, where Alaska Department of Fish and Game and Native contractors conduct the survey, the outreach programs are newer, more variable, and dependent on Alaska Migratory Bird Co-Management Council outreach. This may explain the difference in response rates in some cases.

The accuracy and reliability of the information collected depends, to a very large degree, on the training and experience of the Refuge Information Technicians, contractors, and village surveyors. Sampling and coverage error, and measurement error, particularly item nonresponse, is very much a function of the demonstrated ability of the Refuge Information Technician, contractor, and surveyor to explain the purposes of the survey and why accurate reporting of harvest is so important, particularly for species of concern.

Trust between surveyors and village households, as well as anonymity, is essential for accurate and reliable information. Subsistence migratory bird hunting has always been a particularly sensitive issue because, until 2003, migratory bird hunting before September 1 had been illegal for many years, and there was a great fear of law enforcement--a fear that still persists. This is why surveyors who are local residents are contracted with to conduct the survey in their respective villages: it increases trust which helps minimize nonresponse.

Nonresponse occurs both when villages and/or households refuse to participate in the survey, and when villages or households are not surveyed for some other reason. Households which refuse to participate in the survey, may be taking more birds than those that do participate, creating nonresponse bias, but we have no proof of this. We do know that beginning in 1995, when two Refuge Information Technicians were hired on the Yukon Delta National Wildlife Refuge who were highly trusted by local hunters, reporting of waterfowl harvests in one of the most important waterfowl nesting areas in North America (Nelson Island) increased substantially. An opposite bias occurs when some village surveyors, especially those new to the job, have surveyed only the households with active hunters. This has occurred even though our training programs stress to include nonhunting households in the survey and ask the surveyors to explain to the nonhunting households that it is okay for them to participate. Households refusing to participate because they take a lot of birds (unit nonresponse), and underreporting or not reporting the take of certain species on survey forms (item nonresponse) would have the opposite effects on harvest estimates that the inclination to survey households with active hunters would have. We cannot determine/correct for these biases because we do not know what they are. However, we have reason to believe that both of these biases have been decreasing as hunters become more familiar with and trusting of harvest surveys, at least in the most heavily hunted areas. We also qualify our data by discussing these possible biases when survey data are published (Wentworth, 2004. Subsistence Migratory Bird Harvest Survey, Yukon-Kuskokwim Delta, 1995-2000. U.S. Fish and Wildlife Service. Anchorage. pp. 28-29).

We calculate our response rates manually from our permission slips, which say "Yes" or "No" to the survey and indicate alternates. Our survey data analysis system was not designed to incorporate data entry for the 2004 and 2005 permission slips. Thus response rates were not determined for each harvest level, High, Low, or None, but were determined on an overall basis.

Presently, it is not possible to incorporate data entry for any of the permission slips. Some 2004 and 2005 permission slips are still in the field. We have never designed the data entry and management system to conduct this type of analysis. There are thousands of these permission slips held in field office files and analysis would create an additional, significant workload that we are not currently staffed to manage.

- 4. Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of tests may be submitted for approval separately or in combination with the main collection of information.**

No testing is undertaken, other than the testing of survey procedures that is part of the ongoing process of conducting and refining this survey.

- 5. Provide the name and telephone number of individuals consulted on statistical aspects of the design and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.**

The individual currently directly responsible for information collection and analysis is: Cynthia Wentworth, Subsistence Harvest Survey Coordinator, Alaska Migratory Bird Co-Management Council, Anchorage, Alaska, 99503 (907 786-3478). E-mail: Cynthia_Wentworth@fws.gov

The Alaska Department of Fish and Game, Division of Subsistence, has a cooperative agreement with the Service for technical assistance with the survey, and for data management, analysis and support. Technical assistance with the survey is provided by:

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Data management, analysis and support are provided through ADF&G's Regional Program Coordinator for Information Management. This includes data entry and summation of data results suitable for Statewide report writing by the harvest survey coordinator. Currently, the Acting Regional Program Coordinator is:

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