Socioeconomic/Administrative – Alternative 2 minimizes the frequency of changes, thereby improving the learning potential under the AHM process, while still affording the option to adjust packages at regular intervals in recognition of changing bird status, environmental conditions, and socioeconomic changes.

Table 6.3. Impacts that alternatives to the frequency of review and adoption of duck regulatory packages will have on the affected environment.

Frequency of Review and Adoption of Duck Regulatory Packages	ALTERNATIVES				
Environmental	Alternative 1 (no change)	Alternative 2 (preferred)			
CONSEQUENCES	Regulatory packages adopted annually.	Establish regulatory packages for five-year periods.			
Target populations	This is the current practice and is not likely to significantly impact target populations	Not likely to significantly impact target populations compared to current practice			
Socioeconomic/Administrative	Very costly in terms of additional administrative burden to negotiate packages annually. Additionally, the lost learning opportunity caused by more frequent changes is expensive both in terms of harvest opportunity and costs associated with monitoring for less return.	Lowers administrative costs while providing some flexibility to address changing environmental circumstances, increases learning potential compared to alternative 1.			
Other wildlife, threatened/endangered species, vegetation, recreation, and physical/cultural resources	_*	_*			

^{*} No difference among alternatives; for a review of the impacts/consequences of hunting in general on this environmental aspect, please refer to sections 6.1.5-6.1.9.

6.2.2.3 Stock-Specific Harvest Strategies

A summary of the impacts the three alternatives to this component of the proposed action will have on the affected environment is provided in Table 6.4.

<u>Alternative 1</u> (no change, preferred alternative). Continue use of currently employed stock-specific harvest strategies and develop new strategies when necessary.

Effects: target populations, socioeconomic/administrative.

Target populations – Stock-specific harvest strategies protect individual species deemed biologically incapable of sustaining the harvest levels imposed by the current AHM process based on mallard status. Alternative 1 reduces the risk of overharvesting specific stocks without unnecessarily reducing harvest opportunities on more abundant species.

Socioeconomic/Administrative – Alternative 1 allows hunters, businesses and governments to plan for hunting expenses and regulations in advance, since it provides a set of conditions under which regulations would be changed, and the extent of change in those regulations. However, adding additional strategies could increase regulatory complexity because there could be new strategies and associated regulations developed, as needed, to address additional stocks of migratory birds.

Alternative 2 Significantly reduce the use of stock-specific harvest strategies.

Alternative 2 would be accomplished by reducing general seasons to a structure that can be sustained by more stocks than the existing aggregate structures are able to sustain. For example, a simplified set of regulations for general duck seasons would result in a reduction in the number of separate harvest strategies that would be needed for ducks, such as those presently used for northern pintail and scaup.

Effects: target populations, socioeconomic/administrative.

Target populations – Under Alternative 2, stocks currently regulated by the various harvest strategies will be affected in one of two ways, depending on whether the basic duck regulatory packages are reduced. If the regulatory packages were reduced (i.e., reduced season lengths and total daily bag limits) to the level that the less-abundant stocks could sustain the expected harvests, there would be a significant reduction in overall harveSt. The population sizes of many of the more abundant duck stocks might be expected to increase up to the limits possible given existing environmental and habitat availability constraints. If the regulatory packages were not reduced, significant increases in harvest would be expected in those stocks currently governed by separate harvest strategies, and further reductions in their population status likely would occur. Due to the disparate status of many migratory bird species currently harvested under general regulations, all separate stock-specific harvest strategies likely cannot be safely eliminated without risk of adverse population/species level impacts. This is because some stocks simply cannot sustain levels of harvest that would be warranted for the majority of stocks. In addition, future circumstances might warrant development of new stock-specific harvest strategies, due to changes in the population status of some stocks. These factors suggest that unless the regulatory packages were reduced, this alternative would be difficult to implement while ensuring sustainability of all of the various migratory bird stocks currently managed.

Socioeconomic/Administrative – The administrative process would not be markedly affected by adoption of Alternative 2 compared to current practice. Regulations still would be established annually (or periodically, depending on the frequency and timing of the regulatory process). The analytical burden associated with special harvest strategies would be lessened because the stock assessments required by the separate harvest strategies would be reduced significantly. If regular seasons were reduced to the lowest

level deemed appropriate for the stocks requiring the most conservative regulations, very significant reductions in hunting opportunity would be expected. Local economies have varying dependence on revenue received from migratory bird hunters. Businesses devoted to selling hunting equipment and supplies, hunting clubs, guides, and hotels and restaurants near major hunting areas depend on hunting for major portions of their annual income. Much of this economic benefit may be lost if seasons were reduced to low levels. If the existing regulatory packages remained unchanged, however, harvest in excess of what the reduced-status populations could withstand would be expected. One advantage is that regulations would be simpler and easier for hunters in terms of understanding and compliance, and would likely result in fewer violations of the bag limit restrictions associated with the separate harvest strategies currently used.

<u>Alternative 3</u> Expand the use of stock-specific harvest strategies to include most individual stocks.

Effects: target populations, socioeconomic/administrative.

Target populations – This alternative would provide some additional limited protection from potential overharvest, since more stocks would have strategies specifically tailored to their status and population dynamics. However, there is no evidence suggesting that treating most duck stocks in the aggregate is detrimental to any individual stock because most duck stocks experience the same changing environmental effects in any given year and their populations generally respond to these changes in a similar fashion. In those few cases were a specific stock experienced markedly lowered population status (e.g., northern pintails, scaup), development of a stock-specific harvest strategy has helped to stabilize the population. It should be noted that the reasons for such declines cannot be shown to be directly related to harvest management practices (Miller and Duncan 1999; Boomer et al. 2004). For some stocks presently treated in the aggregate, harvest likely would be increased.

Socioeconomic/Administrative – Alternative 3 would provide the maximum harvest opportunity for each stock because strategies would be based on the status of individual stocks. This alternative would be difficult to implement, however, because of the complexity it would generate. Annual regulations, including daily bag limits and season lengths, would likely vary for each independently managed stock. Planning for and executing these annual regulations would be difficult, and it would significantly increase the costs incurred by the States and the Service to promulgate such complex regulations. Significant increases in enforcement expenditures would result, and the predicted increase in hunting violations likely would lead to reduced participation by hunters, particularly hunters who are not comfortable making the numerous species identifications that would be required under this alternative.

Table 6.4. Impacts that alternatives to stock-specific harvest strategies will have on the affected environment.

Stock-Specific Harvest Strategies	ALTERNATIVES			
	Alternative 1 (no change, preferred)	Alternative 2	Alternative 3	
Environmental consequences	Continue use of currently employed stock-specific harvest strategies and develop new strategies when necessary.	Significantly reduce the use of stock-specific harvest strategies, reducing seasons to those that can be sustained by the most sensitive species.	Expand the use of stock-specific harvest strategies to include most individual stocks.	
Target populations	Reduces the chance of overharvesting; does not limit harvest of abundant migratory game bird species.	Reduction would lead to reduced harvest and increased population sizes for all stocks; nonreduction would lead to increased harvest and population reductions.	Substantially reduces the risk of overharvest.	
Socioeconomic/Administrative	Allows hunters, businesses and governments to plan for expenses in advance; adding strategies could increase regulatory complexity.	May lead to decreased hunting opportunity; potentially less resources required for analysis; may result in simpler regulations that would benefit understanding and compliance.	Difficult for hunters, businesses and governments to plan for expenses in advance; regulatory complexity would increase substantially; promulgating such complex regulations would increase state and federal costs; enforcement expenses would rise; regulation complexity may decrease participation by potential hunters who are uncomfortable making numerous species identifications.	
Other wildlife, threatened/endangered species, vegetation, recreation, and physical/cultural resources	_*	_*	_*	

^{*} No difference among alternatives; for a review of the impacts/consequences of hunting in general on this environmental aspect, please refer to sections 6.1.5-6.1.9.

6.2.2.4 Special Regulations

Special regulations entail additional days of harvest opportunity outside the established frameworks for general seasons, and are employed to provide additional harvest opportunity on overabundant stocks, stocks that are lightly harvested and can sustain greater harvest pressure when harvest can be achieved without appreciable impacts to nontarget species, and/or stocks whose migration and distribution provide opportunities outside the time period in which regular seasons are held. An important tenet of special regulations is that harvest pressure can be effectively directed primarily at target stocks that can be temporally and geographically isolated so as to avoid nontarget take. Currently, special regulations include: (1) September teal seasons in the Atlantic, Mississippi, and Central Flyways; (2) September teal

and wood duck seasons in Florida, Kentucky, and Tennessee; (3) the special sea duck season along the Atlantic Coast; and (4) special regulations on overabundant resident Canada geese. A summary of the impacts the two alternatives to this component of the proposed action will have on the affected environment is provided in Table 6.5.

<u>Alternative 1</u> (no change alternative). No change to currently-allowed special regulations.

Alternative 1 would maintain the existing special regulation, and the requirements for experimental evaluation of any proposed new special regulations, and periodic assessments of the effects of special regulations.

Effects: target populations, socioeconomic/administrative.

Target populations – The Service does not expect any changes in the current status of target populations under Alternative 1. The long-term population trends of blue-winged and green-winged teal and wood ducks are increasing or stable; thus, the special seasons for these species do not appear to have any adverse effects on their population status. Sea duck population trends are not well known (Sea Duck Joint Venture Management Board 2001); however, the estimated harvest remains small relative to the best estimates of population size. Therefore, present hunting regulations are not believed to be adversely impacting population status. Despite implementation of many special seasons designed to reduce growth rates and/or numbers of overabundant resident Canada geese, populations in all four flyways continue to increase in many areas, suggesting that increased harvest opportunities alone may not reduce some of these overabundant stocks.

Socioeconomic/Administrative — Under Alternative 1, current harvest opportunities would be maintained, the current number of hunters and/or the number of days they hunt are not expected to change as a result of this alternative. Thus, current economic impacts of migratory bird hunting on businesses and communities would not be altered under Alternative 1 compared to current practice. Administrative costs would be maintained and experimental requirements would remain in place for all new special regulations. Costs of conducting experiments would be borne by those requesting the new seasons.

<u>Alternative 2</u> (*preferred alternative*). Eliminate experimental evaluation requirements for special regulations on overabundant resident Canada geese in September, except for areas where previous evaluations indicate an unacceptable level of take of migrant Canada geese, and in areas which have not conducted evaluations where one could reasonably expect an unacceptable level of take of migrant Canada geese (e.g., areas in northern states). All special September Canada goose seasons require

Flyway Council endorsement and Flyway Councils may request evaluations as part of the approval process if they believe such evaluations to be warranted. Additionally, if conditions are believed to have changed, new evaluations can be conducted for areas in which prior evaluations failed with respect to the take of migrant Canada geese. The Service may periodically re-evaluate existing special regulations for other species/stocks on a case-by-case basis to determine whether they are still justified, and will continue to require experiments for any other types of new special regulations.

Effects: target populations, socioeconomic/administrative.

Target populations – Several target populations would benefit from the biological review that would determine if special harvest opportunities were still warranted. In particular, special seasons for sea ducks and teal would be considered. Elimination of experimental season evaluations for overabundant resident Canada geese in September is not expected to alter their population status, but is expected to expedite actions designed to increase harvest of these birds. Sufficient experimentation already has been conducted, and the results indicate that these seasons will not endanger the resident geese. There are some risks to non-target migrant Canada goose populations; however, recent studies provide sufficient data regarding select areas where such seasons could pose a problem for non-target goose populations and those areas would be addressed on a case-by-case basis to ensure non-resident stocks are not negatively impacted.

Socioeconomic/Administrative — Alternative 2 would lead to increased administrative costs associated with the re-evaluation of the existing special regulations. The Service has historically reviewed special regulations when changes in status or environmental conditions suggest there is a reason to do so. This alternative would continue that practice. Although there would be an initial increase in cost associated with such re-evaluations, there could be financial savings associated with elimination of the experimental evaluation requirement for most resident Canada goose special regulations. Depending on findings, the results of those evaluations could lead to expansion of one or more of the current special duck seasons or establishment of additional special seasons, either of which would result in more hunting opportunity and the associated economic benefits. On the other hand, evaluations could lead to reduction or elimination of one or more current special seasons, resulting in reduced hunting opportunity and some negative impacts on local economies. There would be some financial savings associated with elimination of the experimental evaluation requirement for most resident Canada goose special regulations. Expediting the approval of additional special regulations for resident Canada geese would increase harvest and result in fewer of those birds, which in turn would reduce crop depredation and other conflicts caused by their overabundance.

Table 6.5. Impacts that alternatives to special regulations will have on the affected environment.

Special Regulations	ALTERNATIVES ALTERNATIVES					
Special Regulations						
	Alternative 1 (no change)	Alternative 2 (preferred)				
Environmental consequences	No change to currently-allowed special regulations.	Eliminate experimental evaluation requirements for special regulations on overabundant resident Canada geese in September, except for areas where previous evaluations indicate an unacceptable level of take of migrant Canada geese, and in areas which have not conducted evaluations where one could reasonably expect an unacceptable level of take of migrant Canada geese (e.g., areas in northern states). All special September Canada goose seasons require Flyway Council endorsement and Flyway Councils may request evaluations as part of the approval process if they believe such evaluations to be warranted. Additionally, if conditions are believed to have changed, new evaluations can be conducted for areas in which prior evaluations failed with respect to the take of migrant Canada geese. The Service may periodically re-evaluate existing special regulations for other species/stocks on a case-bycase basis to determine whether they are still justified, and will continue to require experiments for any other types of new special regulations.				
Target populations	No adverse consequences to teal or wood ducks (population trends are increasing or stable), consequences to sea ducks uncertain, but believed minor, resident Canada goose populations expected to stabilize or continue to increase.	Biological reviews would be beneficial for some species; lack of additional biological review not expected to impact resident geese; some risk to nontarget migrant Canada goose populations.				
Socioeconomic/administrative	Current special regulations provide additional hunting opportunity; have positive impacts on hunters and local economies and reduce crop depredation and other adverse impacts of overabundant resident Canada geese.	Biological reviews of special duck regulations could result in either more hunting opportunity and positive impacts on local economies, or less hunting opportunity and negative economic impacts; expediting special regulations for Canada geese would increase hunting opportunity and benefit local economies, and farmers would benefit from less crop depredation.				
Other wildlife, threatened/endangered species, vegetation, recreation, and physical/cultural resources	_*	_*				

^{*} No difference among alternatives; for a review of the impacts/consequences of hunting in general on this environmental aspect, please refer to sections 6.1.5-6.1.9.

6.2.2.5 Management Scale for the Harvest of Migratory Birds

Management scale refers to the geographic area in which stocks are monitored and harvest is managed. The management scale determines the degree to which harvest regulations can differ geographically. The finer the scale, the higher the cost monitoring will be to management agencies. The desire for smaller management scales is driven by the potential for increased harvest opportunity

associated with more refined geographic management. A summary of the impacts the three alternatives to this component of the proposed action will have on the affected environment is provided in Table 6.6.

<u>Alternative 1</u> (no change, preferred alternative). Maintain the current scale of management for all migratory bird species.

Ducks would be managed by flyway based on the status of three mallard stocks (eastern, western, and mid-continent) except the species covered by species-specific harvest strategies, which would be managed at the continental scale. Mourning doves would be managed separately in three regions of the U.S., woodcock in two regions, and geese, sandhill cranes, tundra swans, and band-tailed pigeons would be managed as currently defined individual populations. Coots, gallinules and moorhens, snipe, and rails would be managed at the continental scale.

Effects: target populations, socioeconomic/administrative.

Target populations – This alternative ensures sustainable continental populations of mallards and other duck species that are the subjects of species-specific harvest strategies, because those harvest strategies are supported by adequate population size, harvest monitoring programs, and other relevant population statistics. Likewise, geese, mourning doves, woodcock, sandhill cranes, tundra swans, and band-tailed pigeons are monitored at their current management scales to ensure sustainability. However, if distinct subpopulations exist within any of the currently defined populations/species, and have demographics that differ greatly from the management-scale-wide average, those subpopulations could undergo undetected growth or decline under Alternative 1. Coots, gallinules, moorhens, snipe, and rails are managed at the continental scale under this alternative.

Socioeconomic/Administrative — Alternative 1 maintains the traditional approach of allowing for recognition of geographic variation in harvest opportunity while maintaining a relatively limited number of geographic units that must be monitored and managed separately. Costs of monitoring and managing at the current scale have been considered acceptable to the public and the cooperating management agencies. To date, the level of hunting opportunity that this alternative affords has been adequate to satisfy migratory bird hunters in most years. This approach represents a compromise between recognition of existing natural variation in abundance and distribution with the costs associated with managing at more refined geographic scales, such as is considered in Alternative 3 for this component.

<u>Alternative 2</u> Expand the existing management scale by reverting to a single continental management scale for population monitoring of ducks, mourning doves, and American woodcock. The existing

harvest-management units (e.g., flyways, management units) would be maintained to account for regional differences in hunter numbers and harvest pressure.

Effects: target populations, socioeconomic/administrative.

Target populations – This alternative would use the continental population status of ducks to determine the hunting regulations. This was the approach used prior to the 1990s (see Chapter 2). Traditional flyway differences would be preserved with regard to the composition of the duck regulatory packages, the primary difference being that the package (restrictive, moderate, liberal or closed) selected by the AHM process would apply to all four flyways. The present system allows the regulatory package selection for the general duck season to vary in the Atlantic and Pacific Flyways from what is chosen for the Central and Mississippi Flyways. Under this alternative, duck hunting regulations would be more conservative on average because the harvest potential of mid-continent mallards is less than that of the eastern and western stocks. The resulting reduction in harvest would yield slightly greater population sizes of most duck species over the long term. The existing mourning dove and American woodcock harvest-management units would be maintained, but as with ducks, the regulatory package selected would be based on continental monitoring and would apply to all three (mourning doves) or both (woodcock) management units. If any stock of mourning dove or woodcock has lower or higher harvest potential than the overall continental population, that stock could be over- or under-harvested under Alternative 2.

Socioeconomic/Administrative – The costs of monitoring would be reduced somewhat because special surveys and increased banding efforts (conducted to monitor eastern and western mallards) could be reduced or eliminated. Other survey and banding programs might be reduced if additional management units were combined. Because the Atlantic and Pacific Flyways generally support more stable mallard populations with greater harvest potential than the mid-continent region, they would have more conservative duck hunting regulations on average under this alternative, and thus, less hunting opportunity over the long term. Given the current status of mourning doves and woodcock, we would expect minimal impact on hunting opportunity for those species.

<u>Alternative 3</u> Further geographically refine the scale of duck harvest management, to a greater degree than is currently done, and maintain existing management scales for other stocks (see Chapter 5.4.5).

Effects: target populations, socioeconomic/administrative.

Target populations – Additional geographic refinement for hunted migratory bird populations would not affect those populations more than Alternative 1 except to further reduce the risk of exceeding a

sustainable harvest, because the further refinement would be based on additional biological information and tailored to the specific stocks.

Socioeconomic/Administrative – Alternative 3 is the least cost-effective alternative because further geographic refinement can only be achieved by increasing the intensity of current monitoring activities, and this comes at an increased cost to management agencies. To date, geographic refinement of duck regulations has not resulted in pronounced gains in hunting opportunity, and further geographic refinement for most hunted migratory birds is not likely to yield markedly increased harvest opportunities. Thus, the additional administrative and monitoring costs associated with this alternative are unlikely to yield significant increases in socioeconomic benefit.

Table 6.6. Impacts that alternatives to the management scale for the harvest of migratory birds will have on the affected environment.

Management Scale for the Harvest of Migratory Birds	ALTERNATIVES			
ENVIRONMENTAL CONSEQUENCES	Alternative 1 (no change, preferred) Maintain the current scale of management for all migratory bird species.	Alternative 2 Expand the existing management scale by reverting to a single continental management scale for population monitoring of ducks, mourning doves, and American woodcock.	Alternative 3 Work to further geographically refine the scale of duck harvest management, and maintain existing management scales for other stocks.	
Target populations	Provides population and harvest monitoring that ensures sustainable populations of all hunted species, but does not guarantee protection of all subpopulations.	More conservative hunting regulations for ducks resulting in slightly higher populations over the long term; individual stocks of mourning doves or woodcock could be over- or under-harvested.	Same impact as Alternative 1, except less risk of exceeding sustainable harvest.	
Socioeconomic/administrative	Provides levels of hunting opportunity that have been adequate to satisfy migratory bird hunters most years; expenses at this level of management are moderate and acceptable.	Duck harvest opportunities, and spending in local economies, may be reduced in the Atlantic and Pacific Flyways; expenses associated with monitoring would lessen.	Harvest opportunities may increase slightly over levels provided by Alternative 1, but expenses associated with administration and monitoring would increase substantially.	
Other wildlife, threatened/endangered species, vegetation, recreation, and physical/cultural resources	_*	_*	_*	

^{*} No difference among alternatives; for a review of the impacts/consequences of hunting in general on this environmental aspect, please refer to sections 6.1.5-6.1.9.

6.2.2.6 Zones and Split Seasons

Zoning involves the division of a State into two or more areas, each of which is permitted a full season at different times. States may then split their hunting season (for most species) into two or more nonconsecutive segments, with a closed period between segments. The combination of zones and split seasons allows a State to maximize harvest opportunity within the Federal frameworks without exceeding the number of days allowed for a given season. Currently, States select zone/split configurations for five year periods for ducks and doves. After each five year period, States have the opportunity to change their configurations within the provisions of the guidelines. The use of zones and split seasons for other migratory game birds is handled on a case-by-case basis. A summary of the impacts the two alternatives to this component of the proposed action will have on the affected environment is provided in Table 6.7.

<u>Alternative 1</u> (*no change, preferred alternative*). Continue the current use of zones and split seasons and the five-year schedule for consideration of changes for ducks and doves within established zones/splits guidelines. Goose and crane zones may be adjusted annually.

Effects: target populations, socioeconomic/administrative.

Target populations — Use of zones and split seasons results in some additional harvest, but the incremental impacts of each State's existing zone and split season configuration on the overall harvest of ducks and doves are not known with precision. However, most duck and dove populations are stable or increasing, indicating that within the context of other framework regulations, current zone and split season configurations are not adversely impacting those populations. When reductions in harvest are necessary, they are accomplished through framework regulations, taking into account the effects of existing zone and split season configurations. Thus, Alternative 1 is not expected to have any measurable impacts on target duck and dove populations compared to current practice.

Socioeconomic/Administrative — Use of zones and split seasons enables States to maximize hunting opportunity, thereby encouraging participation in migratory bird hunting and resulting in increased benefits to local economies. Alternative 1 would maintain those benefits at current levels. Limiting the frequency of potential changes to the proposed five-year interval for zone/split-season configurations would continue to be somewhat less responsive to public desires for adjustments, but there is no evidence that this has impacted hunter participation negatively. States incur some costs associated with contacting their hunting publics to assess their desires with regard to zone locations and dates for split seasons, primarily through public meetings and surveys.

<u>Alternative 2</u> Allow annual adjustments to zone/split-season configurations for all migratory game birds. **Effects:** target populations, socioeconomic/administrative.

Target populations – The consequences of Alternative 2 to target populations are not expected to differ from those of Alternative 1, except that annual adjustments to zone and split configurations would complicate any attempt to assess the impacts of zones and split seasons on target populations and add increased uncertainty to the predicted harvest that would be expected to result from the annual framework regulations that were established.

Socioeconomic/Administrative – Annual adjustments to zone and split season configurations are administratively burdensome and would increase the costs associated with the annual promulgation of regulations. Alternative 2 might increase hunter satisfaction by allowing States to respond more rapidly (i.e., annually) to hunters' preferences for changes in zone/split configurations than Alternative 1 allows. However, waterfowl hunter attitude surveys conducted by Ringleman (1997) suggest that neither zones nor split seasons were issues that mattered much to the majority of duck hunters he surveyed. There is no information available on whether annual adjustments to zones and split seasons would result in more hunter participation and the associated increase in economic benefits, but based on the study by Ringleman, this seems unlikely.

Table 6.7. Impacts that alternatives to zones and split seasons will have on the affected environment.

Zones and Split Seasons	ALTERNATIVES ALTERNATIVES				
ENVIRONMENTAL CONSEQUENCES	Alternative 1 (no change, preferred alternative). Continue the current use of zones and split seasons and the five-year schedule for consideration of changes.	Allow annual adjustments to zone/split-season configurations for all migratory game birds.			
Target populations	No impact – target populations will continue to be harvested at levels that maintain healthy populations, based on framework regulations that take zones and split seasons into account	No impact – target populations will continue to be harvested at levels that maintain healthy populations, based on framework regulations that take zones and split seasons into account			
Socioeconomic/administrative	Administrative costs would continue to be moderate; States would only be able to respond to hunter preferences on zones and split seasons periodically, potentially reducing hunter satisfaction	Administrative costs would increase substantially; States could respond to hunter preferences on zones and split seasons annually, potentially increasing hunter satisfaction			
Other wildlife, threatened/endangered species, vegetation, recreation, and physical/cultural resources	_*	_*			

^{*} No difference among alternatives; for a review of the impacts/consequences of hunting in general on this environmental aspect, please refer to sections 6.1.5-6.1.9.

6.2.2.7 Subsistence-Harvest Regulatory Process

A summary of the impacts the two alternatives to this component of the proposed action will have on the affected environment is provided in Table 6.8.

<u>Alternative 1</u> (no change, preferred alternative). Allow a spring-summer subsistence hunting season with regulations necessary to ensure the long-term conservation of the migratory bird resource.

Under Alternative 1, the Service would continue to allow a spring-summer harvest of migratory birds. The harvest would, to the extent possible, be consistent with the customary and traditional subsistence harvest of migratory birds by Alaskan indigenous inhabitants, while providing for their long-term sustained use. Egg gathering would be consistent with the customary and traditional subsistence harvest of eggs by Alaskan indigenous inhabitants. Only bird populations that are determined to be capable of supporting this sustained use would be open to harveSt. The Service will consider several actions when establishing subsistence hunting regulations consistent with the long term-conservation of species open to subsistence harveSt. A summary of the potential management tools that could be employed to regulate subsistence harvest under these actions are listed and described in Chapter 5, section 5.4.7.

Effects: target populations, socioeconomic/administrative.

Target populations – The Preamble of the 1995 Protocol to the Migratory Bird Treaty Amendment states, "...it is not the intent of this Protocol to cause significant increases in the take of species of migratory birds relative to their continental population sizes." The use of household surveys of subsistence harvest areas will enable tracking of participation in subsistence harvest activities and the extent of the take. Should the harvest significantly increase relative to continental populations, then regulatory actions would be taken to keep harvest in compliance with the 1995 Protocol.

Socioeconomic/Administrative — Under Alternative 1, law enforcement efforts would be carried out commensurate with threats to migratory bird populations to ensure that compliance is achieved to maintain harvest at prescribed levels. The subsistence economies of rural areas would continue to benefit from an important food resource which is traditionally shared among members of a community. In addition, this alternative promotes the establishment of regulations recommended by the AMBCC which, along with the regional management bodies, is the embodiment of the co-management process. Greater compliance with regulations developed through the co-management process is more likely than with Alternative 2. By being part of the regulatory process, subsistence hunters, and those who share in the harvest, will have a sense of ownership, leading to greater compliance. An example of how this has worked in the past is the population recovery of cackling Canada geese that nest on the Y-K Delta, in Alaska. The institution of the Hooper Bay agreement in advance of the Migratory Bird Treaty Amendment led to reduced subsistence and reduced fall-winter harvests of cackling Canada geese and

helped the population recover from a low of about 25,000 birds to the current population size of approximately 200,000 (Pamplin 1986; Collins and Trost 2009). Participation in the regulatory process also is anticipated to result in greater participation in the harvest survey. Broader coverage of the survey would lead to more accurate harvest data because it would include the harvest of more of the subsistence hunter population.

<u>Alternative 2</u> Open a spring-summer subsistence hunting season which incorporates fall-winter hunting season regulations (e.g., bag limits, shooting hours).

Under Alternative 2, the Service would replace the current spring-summer subsistence hunting season regulations with a spring-summer harvest of migratory birds, utilizing the same regulations as those previously described for the fall-winter period in all States. Thus, the methods and means required for fall-winter hunting would be adopted, including daily bag limits for individual hunters, species restrictions (as applicable), shooting hours, etc. In addition, the fall-winter regulations concerning exchange and transport of birds and bird parts also would apply.

Effects: target populations, socioeconomic/administrative.

Target populations – Under Alternative 2, daily bag and possession limits would be imposed for all species, unlike Alternative 1 which imposes very limited use of bag limits and only for select species of conservation concern. With increased use of bag limits, the legal take of birds could be reduced (depending on the level at which bag limits were established). Egg gathering would, to the extent possible, be consistent with the customary and traditional subsistence harvest of eggs by Alaskan indigenous inhabitants. The concept of daily bag limits is foreign to subsistence harvesters and considerable education would be required to make such limits effective.

Socioeconomic/Administrative — Customary and traditional methods for taking migratory birds for subsistence in Alaska differ greatly from non-subsistence hunting. Birds are often the first new food supply available after an Alaskan winter. Subsistence users harvest birds not only for themselves and their immediate families, but also to share with other members of their community. The tradition of sharing is a critical element of the subsistence way of life. Birds are collected by the most efficient methods available, often following traditions within most Alaska Native cultures. The adoption of fall-winter harvest regulations would require great changes to the customary and traditional use practices. If individual daily bag limits were imposed in addition to fall-winter season methods and means, Alaskan subsistence communities may not be able to meet their nutritional needs. Changes in traditional harvest approaches also would require considerably higher expenditures by management agencies on education and enforcement to successfully implement the new approaches.

Table 6.8. Impacts that alternatives to the subsistence-harvest regulatory process will have on the affected environment.

Subsistence-Harvest Regulatory Process	ALTERNATIVES				
Environmental consequences	Alternative 1 (no change, preferred alternative) Allow a spring-summer subsistence hunting season with those regulations necessary to ensure the long-term conservation of the migratory bird resource.	Alternative 2 Replace the current spring-summer subsistence hunting season regulations with a spring-summer subsistence hunting season that incorporates fall-winter hunting season regulations (e.g., bag limits, shooting hours).			
Target populations	Birds would be impacted but no change from current harvest levels would be anticipated because this is the no change alternative. Current harvest levels have proven to be sustainable.	Some additional regulations would apply, a shot-shell limit (3) would be imposed for shotguns used for hunting migratory birds, hunting hours would be established daily from ½ hour before sunrise until sunset, and daily bag limits would be imposed. All of these regulations would likely lead to a reduction in overall harvest, but would likely be of little population level impact because current levels of subsistence take with existing regulations have proven to be sustainable.			
Socioeconomic/administrative	Subsistence communities in rural Alaska would benefit from the migratory bird resource; traditional cultural practices would be sustained; a higher level of compliance is more likely with the regulations that are established; the spirit of cooperation and participation in surveys is likely to be greater because these regulations would conform to current cultural practices.	The number of birds taken by a single individual could decrease, potentially resulting in less food available to communities in rural Alaska; compliance with regulations would likely to be difficult to achieve because such regulations are not current cultural practices; expenses to enforce compliance and educate the subsistence hunting public would likely increase and participation in cooperative management programs and harvest surveys would likely decrease			
Other wildlife, threatened/endangered species, vegetation, recreation, and physical/cultural resources	_*	_*			

^{*} No difference among alternatives; for a review of the impacts/consequences of hunting in general on this environmental aspect, please refer to sections 6.1.5-6.1.9.

6.2.2.8 Consequences of Alternatives Summary

None of the proposed alternatives would result in a harvest strategy that is not sustainable. All of the specific regulatory decisions will be revisited annually and the regulations will be adjusted based on the observed status and trends of the stock at issue. Changes in status due to factors other than hunting (i.e., climate change, disease, catastrophic weather events, etc.) would be taken into account and addressed in the subsequent year's hunting regulations. Most other potential impacts to the affected environment associated with the issuance of hunting regulations are not significant and no long-term impacts are anticipated. The major environmental consequences of the alternatives presented in FSEIS 2013 are

administrative (the annual process of how the regulations are established) and socioeconomic (i.e., variations in hunting opportunity and the costs and benefits associated with these variations), so a summary of the socioeconomic/administrative environmental cumulative impacts is warranted. At one extreme, the most administratively burdensome (thus most costly) regulatory actions lead to increased hunting opportunity, lower average population levels, and the most complex regulations on an annual basis. Those regulatory actions that are the least administratively burdensome (thus less costly) result in lower levels of hunting opportunity, generally higher average population levels, and the least complex regulations that would be established on an annual basis. From a biological perspective, either extreme is sustainable as described in these actions and their alternatives.

The fundamental issue addressed by the proposed action is determining how to balance complexity and administrative burden with appropriate levels of harvest opportunity in establishing annual migratory bird hunting regulations. The alternatives outlined in this document strike various levels of balance between these extremes and are based on the entire history and experience derived from the successful harvest management of migratory birds gained over the past century. The overall impact will be the sustainable harvest of millions of migratory birds annually, providing millions of hours of outdoor recreation for millions of Americans, and resulting in billions of dollars of expenditures in local economies, primarily rural, that support hunter activities throughout the U.S. As stated previously, no component associated with the proposed action considered in this document is expected to threaten the long-term viability of any hunted migratory bird population.

6.3 RELATIONSHIP TO LAWS AND POLICIES

6.3.1 Conventions

6.3.1.1 Convention between the United States and Great Britain (for Canada) for the Protection of Migratory Birds.

This 1916 treaty adopted a uniform system of protection for certain species of birds which migrate between the U.S. and Canada to assure the preservation of species, either harmless or beneficial to man. It sets certain dates for closed seasons on migratory game birds and prohibits hunting insectivorous birds but allows killing of birds under permit when injurious to agriculture. Implementing legislation for the U.S. was accomplished by enactment of the MBTA of 1918.

6.3.1.2 Convention between the United States of America and the United Mexican States for the Protection of Migratory Birds and Game Mammals.

This 1936 treaty adopted a system for the protection of certain migratory birds in the U.S. and Mexico. It allows, under regulation, the rational use of certain migratory birds and provides for

enactment of laws and regulations to protect birds by establishment of closed seasons and refuge zones. It was signed in Mexico City, February 7, 1936. Implementation of the treaty was accomplished by amending the MBTA of 1918. The treaty was amended March 10, 1972, to add 32 additional families of birds, including eagles, hawks, owls, crows and jays, and again in 1997 to allow for subsistence hunting.

6.3.1.3 Convention between the Government of the United States of America and the Government of Japan for the Protection of Migratory Birds and Birds in Danger of Extinction, and Their Environment.

This Convention was designed to provide for the protection of species of birds which are common to both countries or which migrate between them by: (1) enhancement of habitat, (2) exchange of research data, and (3) regulation of hunting. The treaty was signed in Tokyo on March 4, 1972, and documents of ratification were exchanged September 19, 1974. The Convention entered into force September 19, 1974.

6.3.1.4 Convention between the United States of America and the Union of Soviet Socialist Republics Concerning the Conservation of Migratory Birds and Their Environment.

This Convention, signed in Moscow on November 19, 1976, provides for protection of species of birds that migrate between the U.S. and the Soviet Union or that occur in either country and "have common flyways, breeding, wintering, feeding or moulting areas." The Convention also encourages actions to identify and protect important habitat and to cooperate in measures to protect migratory birds identified as being in danger of extinction. It also provides for the subsistence use of the migratory bird resource, under regulations, by inhabitants of Alaska. Documents of ratification were exchanged on October 13, 1978, and it was implemented on November 8, 1978.

6.3.2 Laws

6.3.2.1 Migratory Bird Treaty Act of 1918, as amended

The Service carries out the duties and responsibilities of the Secretary of the Interior with regard to the MBTA (16 U.S.C. §703-712). The MBTA implements four bilateral conventions for the conservation of migratory birds with Canada, Mexico, Japan, and Russia. Unless permitted by regulations adopted pursuant to the MBTA, it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. The Secretary is authorized and directed to determine "when, to what extent, if at all, and by what means, it is compatible with the terms of the conventions to allow hunting, taking, capture, killing, possession, sale, purchase, shipment, transportation, carriage, or export of any such bird, or any part, nest, or egg thereof, and to adopt suitable regulations permitting and governing the same, in accordance with

such determinations...• (16 U.S.C. §704). This proposed action is undertaken expressly to address how such regulations will be developed and implemented. The treaties with Japan and the Soviet Union include specific mandates to protect migratory bird habitats.

6.3.2.2 Administrative Procedure Act of 1946

Public Law 79-404, as amended. This Act is designed to improve the administration of justice by prescribing fair administrative procedure. It outlines several forms of administrative proceedings (rulemaking, hearings, adjudication, etc.) and prescribes procedural and substantive limitations thereon.

6.3.2.3 Migratory Bird Hunting and Conservation Stamp Act, as amended

The "Duck Stamp Act," as this March 16, 1934 Act is commonly referred to, requires waterfowl hunters 16 years of age or older to possess a valid Federal hunting stamp. Receipts from the sale of the stamp are directed to the acquisition of migratory bird refuges under provisions of the Migratory Bird Conservation Act, as amended, and since August 1, 1958, (Public Law 85-585) for acquisition of "Waterfowl Production Areas." The Postal Service prints, issues and sells the stamp and is reimbursed for its expenses from money in the fund. A 1976 amendment changed the name of the stamp from "Migratory Bird Hunting Stamp" to "Migratory Bird Hunting and Conservation Stamp."

6.3.2.4 National Historic Preservation Act of 1966, as amended

The National Historic Preservation Act (NHPA) of 1966, and its implementing regulations (36 CFR part 800), require Federal agencies to: (1) determine whether any undertaking (Federally-funded or assisted project) will result in changes in the character or use of historic properties (buildings, structures, objects, sites, districts, and archeological resources); (2) if so, to evaluate the impact such undertakings would have on the historic properties and consult with the State Historic Preservation Office regarding the value and management of specific resources; and (3) consult with appropriate American Indian Tribes to determine whether they have concerns for traditional culture properties in areas of these Federal undertakings. Activities, as described under the proposed action, do not cause ground disturbances, nor do they have the potential to significantly affect visual, audible, or atmospheric elements of historic properties and are thus not undertakings as defined by the NHPA. A copy of the Draft SEIS 2010 was provided to the Bureau of Indian Affairs to allow them an opportunity to express any concerns that might need to be addressed prior to a decision.

6.3.2.5 National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. §§4321-4347)

Public Law 91-190, approved January 1, 1970. NEPA requires Federal agencies to evaluate the potential environmental impacts when planning a major Federal action and ensures that environmental information is available to public officials and citizens before decisions are made and before actions are taken. In general, the NEPA process entails: determining what need must be addressed, identifying alternative ways of meeting the need, analyzing the environmental impacts of each alternative, and deciding which alternative to pursue and how. There are seven major steps in the planning process for the development of an EIS and the implementation of the proposed action. These include:

- (1) **Publication of Notice of Intent** The Notice of Intent to prepare a SEIS on the Hunting of Migratory Birds was published in the *Federal Register* (70 FR 53376) on September 8, 2005. This initiated the scoping process.
- (2) Identification of Issues and Concerns The Notice of Intent solicited public participation in the scoping process, which is the chief way that issues, concerns, and potential management options are communicated from the public to the lead agency. In addition to writing or e-mailing comments, citizens could attend any of 12 public meetings held across the U.S. These meetings were publicized in the March 9, 2006 *Federal Register* (71 FR 12217). In addition to these public meetings, the Service established a website to receive electronic comments and solicited written comments. The Service also announced that all comments received from the initiation of this process on September 8, 2005 until May 30, 2006 would be considered in the development of the SEIS. A report summarizing the scoping comments and scoping meeting was prepared and made available on the Service's website at: http://www.fws.gov/migratorybirds.
- (3) **Development of Alternatives** Following scoping, the Service determined that there are six components of the proposed action for which alternatives can be considered regarding how annual regulations are to be established for the hunting of migratory birds at this time. In addition, alternatives for the subsistence-hunting regulations process should be considered. These alternatives were based on NEPA regulations, public comments, interagency meetings, internal discussion, and review of available scientific information.
- (4) **Analysis of Environmental Effects** After significant issues and alternatives were established, environmental analyses were prepared in order to help the decision-makers and the public understand the environmental consequences of the various alternatives.
- (5) **Publication of Notice of Availability of the draft SEIS** On July 09, 2010 a *Federal Register* publication announced the completion of the draft SEIS and its availability for public review (75 FR 39577-39579). An extended comment period (beyond the customary 60 days) was offered, during

which several public meetings were held. All comments that were received on or before March 26, 2011 were considered in the Final Supplemental Environmental Impact Statement.

- (6) **Publication of Notice of Availability of Final Supplemental Environmental Impact Statement** This *Federal Register* publication follows the public comment period and the review and revision of the draft, based on the comments received for the DEIS; and announces the completion of the Final SEIS, followed by a 30-day waiting period, prior to the beginning of any implementation of the components of the proposed action.
- (7) **Publication of Record of Decision and National Management Plan** This is the final step of the SEIS decision-making process, which states the selected alternative and why it was chosen. The actions associated with the SEIS cannot be taken until the Record of Decision is issued.

6.3.2.6 Endangered Species Act of 1973

Public Law 93-205 of December 28, 1973. The Act provides for the conservation of threatened and endangered species of fish, wildlife and plants by Federal action and by encouraging the establishment of State programs. Specifically, the Act: authorizes the determination and listing of species as endangered and threatened, prohibits unauthorized taking, sale, transport, etc., of endangered fish and wildlife species, authorizes the establishment of cooperative agreements and grants-in-aid to those States which establish and maintain an active and adequate program for endangered and threatened species, and authorizes the assessment of civil and criminal penalties for violating the Act or regulations. The 1978 amendments made substantial changes to the original law, especially regarding Federal construction projects, consultation processes, designating critical habitats, and listing and reviewing listed species.

Section 7 of the ESA, as amended (16 U.S.C. §§1531–1543; 87 Stat. 884) provides that "The Secretary shall review other programs administered by him and utilize such programs in furtherance of the purposes of this Act" [Section 7 (a)(1)] and shall "... insure that any action authorized, funded, or carried out ... is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat ..." [Section 7 (a)(2)]. Section 7 consultation under the ESA for this proposed action has been initiated and the result of the consultation is available to the public at the following website:

(http://www.regulations.gov/#!documentDetail;D=FWS-R9-MB-2011-0014-0350).

6.3.2.7 Freedom of Information Act

Public Law 93-502 of November 21, 1974. This Act requires all Federal agencies to make available to the public for inspection and copying, administrative staff manuals and staff instructions, official

published and unpublished policy statements, final orders deciding case adjudication and other documents. Certain categories of privileged material are exempt.

6.3.2.8 Fish and Wildlife Improvement Act of 1978

Public Law 95-616 of November 8, 1978. Among other things, this Act amended the MBTA of 1918 to authorize the Secretary of the Interior to issue regulations to implement the Convention between the U.S. and the Union of Soviet Socialist Republics Concerning the Conservation of Migratory Birds and their Environment. The amendment also authorizes the Secretary to issue regulations regarding the subsistence practices of indigenous inhabitants of the State of Alaska in accordance with the Soviet Treaty.

6.3.2.9 Regulatory Flexibility Act

Public Law 96-354 of September 19, 1980. The Regulatory Flexibility Act of 1980 (5 U.S.C. §601 et seq.) requires the preparation of flexibility analyses for actions that will have a significant effect on a substantial number of small entities, which include small businesses, organizations, or governmental jurisdictions. The economic impacts of the annual hunting regulations on small business entities are analyzed in detail and summarized in section 6.1.10.3 as part of the cost-benefit analysis discussed under Executive Order 12866 (below). This analysis was revised annually during 1990–1995. In 1995, the Service issued a Small Entity Flexibility Analysis (Analysis), which was subsequently updated in 1996, 1998, 2004, and 2008. The primary source of information about hunter expenditures for migratory game bird hunting is the National Hunting and Fishing Survey, which is conducted at five-year intervals. The 2008 Analysis was based on the 2006 National Hunting and Fishing Survey and the U.S. Department of Commerce's County Business Patterns, from which it was estimated that migratory bird hunters would spend approximately \$1.2 billion at small businesses in 2008. Copies of the Analysis are available from our website: http://wsfrprograms.fws.gov/Subpages/NationalSurvey/NatSurveyIndex.htm.

6.3.2.10 Alaska National Interest Lands Conservation Act of 1980

Public Law 96-487 of December 2, 1980. Among other things, this Act in Title VIII addresses in length provisions for subsistence taking of fish and game in Alaska; however, an exception for migratory birds is contained in Section 815 of that Title. Specifically, Section 815 says that nothing in Title VIII shall be construed as modifying or repealing the provisions of any Federal law governing conservation or protection of fish and wildlife (e.g., MBTA, Bald and Golden Eagle Protection Act).

6.3.2.11 Unfunded Mandates Reform Act

Public Law 104-4 of March 22, 1995. The Unfunded Mandates Reform Act of 1995 requires agencies to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. The purpose of the Act is to strengthen the partnership between the Federal Government and State, local and Tribal governments and to end the imposition, in the absence of full consideration by Congress, of Federal mandates on these governments without adequate Federal funding, in a manner that may displace other essential governmental priorities. It has been determined, in compliance with the requirements of the Unfunded Mandates Reform Act, 2 U.S.C. §1502 et seq., that the proposed action would not impose a cost of \$100 million or more in any given year on local or State government or private entities. Therefore, this action is not a "significant regulatory action" under the Unfunded Mandates Reform Act.

6.3.3 Executive Orders

6.3.3.1 Federal Regulation

Executive Order 12291 of February 17, 1981, seeks to reduce the burdens of existing and future regulations, increase agency accountability for regulatory actions, provide for Presidential oversight of the regulatory process, minimize duplication and conflict of regulations, and ensure well-reasoned regulations.

6.3.3.2 Regulatory Planning Process

Executive Order 12498 of January 4, 1985, seeks to create a coordinated process for developing (on an annual basis) the Administration Regulatory Program, establish Administration regulatory priorities, increase the accountability of agency heads of the regulatory actions of their agencies, provide Presidential oversight of the regulatory process, reduce the burdens of existing and future regulations, minimize duplication and conflict of regulations, and enhance public and Congressional understanding of the Administration's regulatory objectives.

6.3.3.3 Takings Implication Assessment

In accordance with Executive Order 12630 of March 18, 1988 entitled, "Governmental Actions and Interference with Constitutionally Protected Property Rights," the proposed action does not have significant "takings implications" and does not infringe upon any constitutionally-protected property rights. The proposed action will not result in the physical occupancy of property, the physical invasion of property, or the regulatory taking of any property.

6.3.3.4 Regulatory Planning and Review

Executive Order 12866 of September 30, 1993. The Office of Management and Budget (OMB) has determined that this action is significant and has reviewed this action under Executive Order 12866. OMB bases its determination upon the following four criteria: (1) whether the action will have an annual effect of \$100 million or more on the economy or adversely affect an economic sector, productivity, jobs, the environment, or other units of the government; (2) whether the action will create inconsistencies with other Federal agencies' actions; (3) whether the action will materially affect entitlements, grants, user fees, loan programs, or the rights and obligations of their recipient; and (4) whether the action raises novel legal or policy issues. The economic impacts of annual hunting regulations on small business entities are discussed in greater detail under the heading Regulatory Flexibility Act (above).

6.3.3.5 Environmental Justice

Executive Order 12898 of February 11, 1994, entitled, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," promotes the fair treatment of people of all races, income levels and cultures with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Environmental justice is the pursuit of equal justice and protection under the law for all environmental statutes and regulations without discrimination based on race, ethnicity, or socioeconomic status. Environmental justice is a priority within the Service. Executive Order 12898 requires Federal agencies to make environmental justice part of their mission, and to identify and address disproportionately high and adverse human health and environmental effects of Federal programs, policies and activities on minority and low-income persons or populations.

The Service implements Executive Order 12898 principally through compliance with NEPA. All activities are evaluated for their impact on the human environment and compliance with Executive Order 12898. It is not anticipated that the proposed action would result in any adverse or disproportional environmental impacts to minority and low-income persons or populations.

6.3.3.6 Civil Justice Reform

Executive Order 12988 of February 5, 1996. The Department, in promulgating this proposed action, has determined that this proposed action will not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of Executive Order 12988.

6.3.3.7 Protection of Children from Environmental Health Risks and Safety Risks

Executive Order 13045 of April 21, 1997. Children may suffer disproportionately from environmental health and safety risks, which may affect their physical and/or mental development. The

Service makes it a high priority to identify and assess environmental health and safety risks that may disproportionately impact children. The consequences of this proposal have been considered, and determined that the proposed action does not represent a risk to children.

6.3.3.8 Federalism Effects

Executive Order 13132 of August 4, 1999. Due to the migratory nature of certain bird species, the Federal Government has been given statutory responsibility over these species by the MBTA. Frameworks from which States make selections regarding the hunting of migratory birds are promulgated annually. In addition, guidelines regarding special regulations on Federal Indian Reservations and ceded lands are also established. This process preserves the ability of the States and Tribes to determine which seasons meet their individual needs. Any State or Tribe may be more restrictive than the Federal frameworks at any time. The frameworks are developed in a cooperative process with the States and Flyway Councils. This process allows States to participate in the development of frameworks from which they will make selections, thereby having an influence on their own regulations.

The proposed action was developed following extensive input from the Flyway Councils, States, and Native American communities. The proposed action does not have a substantial direct effect on fiscal capacity, change the roles or responsibilities of Federal or State governments, or intrude on State policy or administration. Therefore, in accordance with Executive Order 13132, this proposed action does not have significant federalism effects and does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

6.3.3.9 Responsibilities of Federal Agencies to Protect Migratory Birds

Executive Order 13186 of January 10, 2001 directs any Federal agency whose actions have a measurable negative impact on migratory bird populations to develop a Memorandum of Understanding (MOU) with the Service to promote conservation of migratory birds. The MOUs would establish protocols to guide future agency regulatory actions and policy decisions; renewal of permits, contracts or other agreements; and the creation of or revisions to land management plans. The Executive Order also requires the Secretary of the Interior to establish a Council for the Conservation of Migratory Birds to oversee implementation of the Executive Order. The council is composed of representatives from the Department of the Interior; the Departments of Commerce, Agriculture, State, Transportation, Energy, and Defense; the Environmental Protection Agency; and other agencies as appropriate.

6.3.3.10 Energy Effects

Executive Order 13211 of May 18, 2001. Executive Order 13211 requires agencies to describe the effects regulatory actions have on energy supply, distribution, or use. Executive Order 13211 requires agencies to prepare a Statement of Energy Effects when undertaking certain actions. The proposed action will not significantly affect energy supplies, distribution, or use. For this reason, no Statement of Energy Effects is required.

6.3.3.11 Facilitation of Hunting Heritage and Wildlife Conservation

Executive Order 13443 of August 16, 2007 directs the Department of the Interior and its component agencies, bureaus and offices "to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat." Federal agencies shall work in coordination with the Sporting Conservation Council Federal Advisory Committee, State and Tribal Fish and Wildlife agencies and the public to achieve this goal. Agencies are required to consider the effect their actions have on hunting participation, consider the economic and recreational values of hunting, and manage wildlife and wildlife habitats on public lands in ways that will enhance hunting opportunities to the public. In addition, Federal agencies shall work with State and Tribal governments to establish goals to manage and conserve wildlife and their habitats to ensure healthy and productive populations, and in a manner that respects private property rights and provides opportunities for individuals to hunt those species. Furthermore, the Order requires that Federal actions take into account programs and recommendations of comprehensive planning efforts, such as State Wildlife Action Plans and the NAWMP. This action is specifically intended to document the process by which annual hunting regulations are established and to further the intent of this Order by providing harvest opportunities consistent with the long-term conservation of the migratory bird resource.

6.3.4 Presidential Documents

Government-to-Government Relationship with Tribes

In accordance with the President's memorandum of April 29, 1994 "Government-to-Government Relations with Native American Tribal Governments" (59 FR 22951), E.O. 13175, and 512 DM 2, it has been determined that this action has no effect on Indian trust resources other than those specifically addressed in this document.

6.4 CUMULATIVE IMPACTS

Cumulative impacts, as defined by the U.S. Council on Environmental Quality (40 CFR §1508.7), are impacts on the environment which result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. This analysis considers all reasonably foreseeable, relevant factors that could contribute to cumulative impacts on hunted migratory bird species and their associated biological/socioeconomic environmental factors. In addition, the cumulative impacts of the alternatives to the components of the proposed action are briefly discussed.

Fall-winter hunting of migratory birds removes a portion of the population during their staging and wintering cycles. Hunting has been federally regulated since 1918 to ensure that the number of birds taken by hunters does not adversely impact the long term health of the bird populations. To accomplish this, data are collected each year from monitoring activities, such as aerial surveys and hunter questionnaires, to acquire information on population sizes, habitat conditions, and previous harvest levels. These data are then used to establish current year harvest regulations for migratory bird species, assuring that the vitality of the populations will not be jeopardized by hunting.

Significant numbers of birds also are killed every year by other means (Stout and Cornwell 1976). Anthropogenic-related sources of mortality for migratory birds include collisions with buildings, aircraft, communication towers, powerlines, wind turbines, trains, and automobiles; exposure to toxins and pollution (e.g., oil spills, pesticides, lead shot, acid rain; Brown and Drewien 1995; Read 1999; Bolen 2000; Langen et al. 2007); and electrocution (Erickson et al. 2005). Many birds are taken annually by non-human, natural and introduced predators (including feral and domestic cats; Sargeant et al. 1995; Bowman et al. 2004; Bielefeld and Cox 2006), and some birds perish when vital resources are usurped by natural and/or exotic competitors (DuBowy 1988). Disease, such as avian cholera, duck plague and avian botulism, and adverse weather conditions (especially during migration) also claim the lives of numerous birds each year (Fredrickson 1969; Fedynich and Godfrey 1988, Samuel et al. 1999; Hollmén et al. 2003). The Service recognizes that these factors will continue to play a role in the mortality of migratory birds on an annual basis, although the intensity of any one factor may vary from year to year, making it difficult to predict the exact cumulative impact. Regardless of the potential impacts of these factors on populations, the adaptive process employed in setting regulations (based on annual assessments of population status) ensures that harvest regulations are consistent with long-term conservation.

Wind farm projects are expected to expand in the reasonably foreseeable future and, therefore, their impact on migratory bird populations warrants further discussion here. Much of the land where wind

energy development is likely to occur falls within the Central and Pacific Flyways. Birds migrating north from wintering areas to breeding areas use these flyways in the spring, and birds migrating southward to wintering areas use them in the fall. Each flyway encompasses broad geographic areas, and many specific routes and subroutes within the flyways are used by different species of migratory bird. Wind energy construction sites may have short term negative impacts on birds foraging or nesting in the affected areas, due to increased noise and disruption associated with developing the site and access roads. In the long term, wind energy sites may negatively impact migratory bird populations more directly. Bird injury and/or mortality from electrocution or collision with transmission lines and turbines is likely to increase as the number of wind farms increase, even with appropriate mitigation and minimization measures adopted through use of the guidelines. In 2003, the Service published its Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines (http://www.fws.gov/habitatconservation/wind.html). The interim guidelines were produced with the best available science, with the understanding that they would be updated as new information becomes available. The guidelines were published simultaneously with a Federal Register Notice of Availability and a request for comments on the guidelines (68 FR 41174).

After reviewing the comments received, the Secretary of the Interior established a Wind Turbine Guidelines Advisory Committee (72 FR 11373), composed of 22 members appointed by the Secretary to achieve balanced representation of wind energy development, wildlife conservation, and government. The Committee, formed in accordance with the Federal Advisory Committee Act, provided advice and recommendations to the Secretary on developing effective measures to avoid or minimize impacts to wildlife and their habitats related to land-based wind energy facilities. These measures ensure that such developments are implemented in a fashion that will not adversely impact migratory bird populations. The electrocution and collision of birds along transmission and distribution lines, which impacts hundreds of bird species, is a well known problem (Bevanger 1994). In the introduced Rocky Mountain population of whooping cranes, powerline collisions were the number one cause of fledgling mortality (Brown et al. 1987). A 1995 study of powerline related avian deaths in the San Luis Valley, Colorado, reported that >80% of mortalities were of waterfowl and cranes (Brown and Drewien 1995). At a wind power development site on Buffalo Ridge, Minnesota, 71% of the fatalities reported during 1996-1999 were migrant birds (Johnson et al. 2002). The number of fatalities due to collisions at wind energy sites across the U.S. averages 2.19 bird deaths (all species) per turbine per year, with resident species suffering a much higher incidence of injury/death than migratory species (Erickson et al. 2001). However, wind energy development sites will likely continue to contribute to the mortality of migratory bird species.

Habitat has the most significant impact on the size and health of any migratory bird population (Banks 1979). Many species may experience population declines in response to destruction and fragmentation of prime habitat as land is converted to accommodate the growing human population. For example, as the human population expands, swamps, wetlands, plains and other natural systems are likely to be lost to urban development, mines, and agriculture. It is estimated that over one-half of the original wetlands in the conterminous U.S. have been lost to such development since the time of the European settlement of North America (Dahl 2000). In recognition of the impact habitat loss may have on migratory bird species, numerous government (e.g., NAWMP, National Wildlife Refuge System, National Parks, establishment of wilderness areas, etc.) and private programs (e.g., Ducks Unlimited, Nature Conservancy) have been implemented to maintain and restore wildlife habitat throughout North America. Although these programs cannot completely stop the loss of wildlife habitat, they do serve to protect existing resources, restore degraded habitat, and maintain quality habitat for the nation's valuable wildlife resources.

A very serious concern is the impact global climate change will have on the remaining valuable migratory bird habitats. The rate of global climate change is accelerating, and many areas are predicted to experience extensive warming, changing precipitation patterns, shifts in vegetation, rising sea levels, increased frequency and intensity of severe weather events (e.g., fire, flood, drought), increased numbers of pests, pathogens, and invasive species, changes in the timing and length of the seasons, and declining snow packs (MacCracken et al. 2000; Inkley et al. 2004; IPCC 2007). These effects are likely to have a significant impact on migratory bird species, either directly or indirectly. The specific impacts will depend greatly upon local conditions and the ability of different species to respond to various components of the changing environment. Computer-run, mathematical simulations of the atmosphere and ocean are the principal tool for predicting the projected outcome of global climate change and most models make projections for the year 2100 and beyond.

Model predictions forecast climate and habitat changes for nearly every region important to migratory birds in North America. The impact these changes will have on migratory bird species is uncertain in many cases, but recent studies suggest that factors such as timing of migration, range distribution, and productivity may all be affected (Crick 2004). For example, the Western Boreal Forest region of Alaska and northwestern Canada supports a significant portion of the Nation's breeding waterfowl. This region is projected to be among the habitats most affected by global warming as it experiences the consequences of significantly higher temperatures, such as melting permafrost, rising sea levels, extended ice-free seasons on lakes and rivers, early runoff, and shifts in vegetation (Inkley et al. 2004). All of these changes will impact migratory bird populations. The extent to which migratory birds will be able to adapt

to these changes is not presently known. Complete adaption by all species, however, is viewed as highly unlikely (Crick 2004). The Service's approach to harvest management will continue to be one of annual assessment and regulation of harvest opportunity to be consistent with population status. Thus, changes in populations will be detected, and appropriate adjustments to harvest management implemented (e.g., changes to bag limits, season length, framework dates, etc.), based on the anticipated continuing changing status of hunted migratory bird populations.

Rising sea levels associated with increased global temperatures are projected to have a devastating impact on coastal wetland habitat. Regions with coastal habitats that are critical to breeding and migrating bird species include the Pacific Northwest region, the Central California Coast, the Gulf Coastal Prairie, and the Mid-Atlantic CoaSt. Sea levels in these regions are expected to rise an average of 0.48 meters by the year 2100 (projected range 0.03-0.95) (U.S. Global Change Research Program 2000), and will have varying impacts on different coastal habitats. Of concern are the serious negative effects increased water levels and saltwater intrusion could have on tidal wetlands and marshes. A majority of these prime waterfowl habitats may be lost permanently, since extensive land development prohibits their reestablishment (U.S. Climate Change Science Program 2009). On the Atlantic coast, up to 45% of wetland habitat important to waterfowl is projected to be destroyed by rising sea levels by the year 2100 (Yaich and Wentz 2007). A similar scenario is expected on the Pacific coaSt. Regions of the Gulf Coast, such as the Chenier Plain marshes, which currently support over 1.3 million waterfowl, are projected to be so inundated by sea water that they may only support 1% of current populations by the year 2100 (Yaich and Wentz 2007).

Other regions important to breeding, staging and wintering migratory birds, such as the Mississippi Alluvial Valley, Great Basin, southern Great Plains, and the U.S. Great Lakes region, are likely to encounter a different sort of problem. The changes in precipitation, higher temperatures, and increased evaporation predicted for these regions are likely to lead to lower water levels in streams, lakes, and in underground aquifers (Milly et al. 2005). An increase of 2.4° C is predicted to lead to a 17% reduction in runoff in the Colorado River Basin (Christensen et al. 2004). Many wetlands may become short lived or non-existent, particularly in the more arid western regions (Milly et al. 2005). Competition among domestic, industrial, and agricultural uses of water could increase, leaving even less water for wildlife-related needs. It is estimated that lowering water levels in the Upper Great Lakes area could result in a 39% decrease in regional duck populations by the year 2100 (Yaich and Wentz 2007).

Lastly, the Prairie Pothole Region (PPR) of the north central U.S. is an area of particular importance to waterfowl productivity in North America. A significant percentage of North America's ducks nest and are produced in the PPR. In fact, the PPR provides approximately 50% of the breeding habitat for North

American ducks (Linduska 1964). Many waterfowl require 2.5 to 3.5 months of wetland habitat in order to raise their young to fledging, and for adult birds to complete their molt (Baldassarre and Bolen 1994). Climate models predict that increasing temperatures and shifting climate patterns associated with global warming may lead to reductions in water volume and longevity in wetland habitat, as well as changes in wetland vegetation. These changes likely would severely reduce the time available for waterfowl to use wetlands during the breeding season (Glick 2005; Johnson et al. 2010). In the PPR specifically, models indicate that a 4°C increase in temperature is likely to substantially decrease breeding waterfowl abundance in the PPR. This decrease would result as habitat in both the eastern and western prairie potholes becomes too dry to support historical levels of waterfowl (Johnson et al. 2010). However, debate continues as to whether such a scenario will occur (Loesch et al. 2011).

The projected impacts of climate change are based on model predictions, generally for the year 2100, and thus are subject to considerable uncertainty. Therefore, the Service's proposal is to establish hunting regulations annually and thus take these incremental impacts into account should they occur. The Service will continue to base the annual level of harvest on the observed population size and habitat conditions. If results of monitoring programs indicate that bird populations are unable to withstand harvest pressure likely to occur under a given set of regulations, the regulations will be made more restrictive or seasons will be closed until the population can withstand the harvest pressure.

Given that the development of hunting regulations is an adaptive process, the threat of incremental environmental impacts based on the seven components of the proposed action and their associated alternatives is quite low. The impact of concern pertains to the effect these alternatives will have, in combination with other biotic and abiotic population limiting factors, on the long-term sustainability of migratory bird populations that are hunted. None of the proposed alternatives would result in a harvest strategy that is not sustainable. All of the specific regulatory decisions will be revisited annually and the regulations will be adjusted based on the observed status and trends of the stock at issue. Thus, changes in status due to factors other than hunting (i.e., climate change, disease, catastrophic weather events, etc.) would be taken into account and addressed in the subsequent year's hunting regulations.

6.5 UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts include effects that are directly related to the proposed action and which adversely affect the environment, the health of biological resources, and/or social systems. Unavoidable adverse impacts are likely to occur from the implementation of several alternatives associated with the seven components of the proposed action, some of which have already been outlined in the preceding paragraph. There will be costs associated with the proposed action, and all alternatives will require

annual funding from Federal, State, and local organizations. Annual monitoring requirements of population status and harvest would continue to be borne by the cooperating national and international agencies. All of the components of the proposed action will result in the harvest of millions of migratory birds annually and those that are opposed to such harvest on moral or ethical grounds will not be in favor of these actions. Depending on the component of the proposed action or alternative, economic costs will be variable, but the end result will be similar in magnitude to current expenditures and activity regardless of the action or alternative chosen. Alternatives that increase hunting opportunity also will increase economic benefits and administrative costs as discussed above. In addition, unavoidable adverse social and cultural impacts would follow adoption of alternative 2 under the subsistence-harvest regulatory action. This subsistence-harvest alternative would alter a customary and traditional cultural activity that has great importance among Alaska Natives and other rural Alaskan residents, as well as potentially remove a resource that provides them with necessary nutrition.

6.6 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Any irreversible and irretrievable commitment of resources by a proposed action must be stated. The proposed action concerns wildlife, a renewable resource; thus, the effects of the proposed action are not irreversible or irretrievable.



CHAPTER 7

PUBLIC COMMENT ON DSEIS AND SERVICE RESPONSE

7.1 Introduction

The 2010 Draft SEIS (DSEIS) on the Issuance of Annual Regulations Permitting the Hunting of Migratory Birds was distributed to the public and the Service received 21 letters in response. Written comments were received from the four flyway councils (Atlantic, Pacific, Central, and Mississippi). Additionally, the National Flyway Council submitted a separate set of comments. Comment letters also were received from eight individual states (CT, IA, MO, MN, NC, NY, WI, and WY), three private individuals, three non-governmental organizations (Ducks Unlimited, the Animal Legal Defense Fund, and California Waterfowl Association), as well as the Environmental Protection Agency, and Environment Canada. For six of the seven components outlined in the DSEIS, the Service's preferred alternative was supported by the majority. The one component that received mixed reviews concerned the schedule and timing of the general regulatory process. The following section summarizes the major points of the comments received and provides the Service's response to those comments. Copies of all letters received can be found in Appendix 10 of this document. In addition, a summary of the comments is provided in Table 7.1 and Tables 7.3-7.9. Editorial suggestions and requests for clarification were addressed throughout the revised text as appropriate, and will not be discussed individually here. Comments regarding the seven components of the regulatory process are discussed first in the section below, followed by a short section that includes the Service's response to general (non-component related) comments.

7.2 SPECIFIC COMMENTS

7.2.1 Component 1. Schedule and Timing of the General Regulatory Process.

Preferred Alternative: Promulgate annual regulations using a single process for early and late seasons based on predictions derived from long-term biological information and established harvest strategies.

Public Comments: The preferred alternative received 19% support, 29% support pending changes/clarification, 19% opposition, and 33% no comment responses.

The primary concerns raised with regard to the preferred alternative had to do with the unknowns surrounding the adoption of a single process. Specifically, there were concerns about the potential loss of

harvest opportunity, the lack of explicit detail regarding how the proposed schedule would operate, and apprehension that the Service could make last minute changes to the regulations without input from the Flyway Councils, States and other stakeholders. Several respondents requested that the Service produce models, using available historical data, to simulate how the preferred alternative would have affected migratory bird hunting seasons had the alternative been implemented in past years.

Table 7.1. Summary of all comments received in response to the schedule and timing of the general regulatory process. The numbers in the column represent the number of times a particular comment was made.

Schedule and Timing of the General Regulatory Process						
Comment	FLYWAY	STATES	EPA/CWS	NGOs	INDIV.	TOTAI
Support preferred alternative	1	2		1		4
May support preferred alternative pending changes	2	3		1		6
Does not support preferred	1	3				4
Non-committal/no specific comment	1		2	1	3	7
Specific comments/concerns						
Concern about more conservative regulations: would like to see how this would affect the AHM matrix, and hunter opportunity through the development of models using historic data (25 years)	5	5		1		11
Timing would impact surveys and state processes	2	2				4
As written, seems like the Service would make last minute changes without consulting Flyways- this is not okay	1	3				4
Explicitly state implications of the preferred (how regulations will change, impact on special seasons, AHM, etc.)	1	2				3
The preferred will lead to major communication problems; regulations would be already announced to the public	1	2				3
Define "slightly more conservative"; clarify why regulations would have to be more conservative	1	2				3
An even earlier process would be preferred		3				3
Alternative might erode commitment of states to the flyway process	1	1				2

(continued)

Table 7.1. (*continued*) Summary of all comments received in response to the schedule and timing of the general regulatory process. The numbers in the column represent the number of times a particular comment was made.

Schedule and Timing of the General						
Regulatory Process Comment	TH X/XX/ A X/	OTE A TENE	EDA/CWC	NCC	INIDIST	TOTAL
	FLYWAY	STATES	EPA/CWS	NGOs	INDIV.	TOTAL
SRC could be held as webinar	1	1				2
Flyway Council and Technical Section	1	1				2
meetings should not be reduced						
Explicitly state the potential negative effects of last minute regulatory change	1	1				2
May not prevent overharvesting – model what would have happened if this was implemented over the past 5 years	1	1				2
Define criteria for "extreme and unexpected changes in population status"		2				2
Prefers a modified/different alternative that isn't in the SEIS		1				2
Would the preferred alternative really reduce costs and the carbon footprint across the board? It seems like this would only apply to DMBM.	1	1				2
State how pintail and scaup might be impacted under the preferred alternative		2				2
Explicitly state how the process could be completed earlier	1					1
Provide examples of how seasons would become more conservative	1					1
A process similar to Canada might work	1					1
State how regulations would be set for species with "no alternative to annual review"	1					1
Many of the consequences for Alternative 3 apply to the preferred alternative	1					1
States won't be able to finalize until July		1				1
Remove the caveat that Service can modify in the face of unexpected changes		1				1
Would have to eliminate the Council meetings at the NAWNRC and in July		1				1
Explicitly state that "the frequency of timing of flyway meetings is not dictated by the regulations process"		1				1
If preferred alternative is adopted, the Harvest Management Working Group should be in charge of the analyses		1				1

Service Response: Overall, the Service agrees with many of the opinions that were expressed with regard to this component of the regulatory process and agrees that additional work would be required prior to implementation of the preferred alternative. As an initial effort to better understand the possible implications for harvest opportunity through adoption of the preferred alternative, the Service undertook a simulation exercise based on mid-continent mallard population dynamics and reviewed the resulting harvest regulations (Appendix 11). The Service could not use the actual data from past years because of confounding effects that would have been incorporated due to the regulatory decisions that were made during those past years. Rather, the Service simulated a population trajectory based on the underlying population models currently used for mid-continent AHM (see Chapter 3). Using this simulated population, both the current AHM protocol and the new proposed alternative protocol (Alternative 2) were used to estimate the frequency of regulatory decisions during 1,000 time steps. There are four competing models currently used for mid-continent AHM: (1) compensatory survival and strong density dependent recruitment (ScRs), (2) compensatory survival and weak density dependent recruitment (ScRw), (3) additive survival and strong density dependent recruitment (SaRs), and (4) additive survival and weak density dependent recruitment (SaRw) (Appendix 11). The simulations for the four models were based on one of the specific models being correct. Results of the simulations performed using this approach are summarized in Appendix 11. For all models, there was little difference between the two protocols (Appendix 11).

Based on the results of these simulations, the Service believes that continued efforts toward implementation of the preferred alternative should be undertaken. The Service acknowledges, however, that a number of issues need to be resolved prior to implementation. For example, the Service must determine how the preferred alternative will impact the specific harvest strategies that exist for several other species (e.g., scaup, pintails). In addition, many management plans include harvest strategies (e.g., geese, swans, cranes) that will require additional adjustment and evaluation. Furthermore, the model simulations have highlighted the need to further refine the model weighting procedure that is currently used in the basic AHM process. The Service envisions that all of these technical aspects will be addressed through the established Harvest Management Working Group. The Flyway Councils, and the public, will be advised of the progress of this technical work through publication of notices in the *Federal Register* and, where appropriate, in peer reviewed professional literature.

In addition to the technical aspects that will need to be addressed prior to implementation, two other major issues were raised in several comment letters and will need to be resolved with the Councils and the public. The first of these issues concerns the actual timing of the annual regulation meetings. In the preferred alternative, the Service suggested that April would be an appropriate month for Councils to

meet, followed by the Service's Regulation Committee. Several respondents suggested that April was too close to necessary field activities, and that a time frame prior to April would be more advantageous. The Service recognizes that many issues from all of the participating parties must be considered when choosing the best time to conduct these meetings. For this reason, the Service proposes using the time interval required for the Service, Flyways, and the public to advance further technical work to also decide on a meeting time that is mutually acceptable to all participants. Concerns also were expressed about limiting the number of Flyway meetings to one each year. The Service's response is to point out that that Flyways would always have the prerogative for conducting additional meetings, should they so desire. Presently, the two western Flyways have three technical meetings each year and the eastern Flyways have just two. The Service would continue to support and participate in all technical meetings the Flyways determined necessary.

The final issue raised was the concern that the Service could change regulations without Flyway Council or other stakeholder consideration or approval if the biological information from the current year did not support the regulatory alternative that was selected. The Service has always had emergency closure authority throughout the period for which hunting regulations have been established, although it has exercised this authority very infrequently and only in response to natural disasters such as high fire danger or hurricane impacts. The Service recognizes that regulatory changes after the process had concluded for the year may create serious challenges for States to address in their regulatory process. Therefore, the Service has removed the statement, "If extreme and unexpected changes in population status were discovered during the annual survey, the Service could modify the proposed rule to reflect these unexpected circumstances prior to September 1 (page 155)" from the DSEIS, and the following statement has been added to the final SEIS (FSEIS):

"The Service proposes that during the implementation period, the Service and Flyway Councils, with appropriate public input, will define what circumstances, if any, warrant changing the regulations after they have been established for a given year. A collaborative effort will be made to develop a process that details how these changes would be effected and implemented, if it was determined that circumstances warranted changing regulations. The belief of the Service is that such changes should be considered only in extreme situations and such occurrences should not be frequently considered, if at all."

Therefore, the Service is proposing to continue to work toward eventual implementation of the preferred alternative by first conducting further evaluations and technical refinements. It may take several years to fully 'retool' all of the underlying processes to promulgate regulations effectively and

efficiently with a single regulatory cycle. Until this technical background work is completed, the Service proposes to continue with the 'no change' alternative to establish hunting regulations, but will work toward rapid implementation of the preferred alternative, contingent upon endorsement by Flyway Councils and the support of other constituents. During this period of additional technical development, the Flyway Councils and the public will have ample opportunity to review and comment on all of the specific issues above as well as any that might emerge from the continued technical assessments.

7.2.2 Component 2. Frequency of Review and Adoption of Duck Regulatory Packages.

Preferred alternative. Establish regulatory packages for five-year periods.

Public Comments: The preferred alternative received 67% support, 4.5% support pending changes, and 28.5% no comment responses.

Comments from respondents regarding the preferred alternative included a request that the Service review differences in season length and bag limit across flyways to assure equitable hunting to all, provide information on how packages could be revised, give specific steps as to how five-year changes would be made, rename the component, include possession limits, and provide an explanation of how the preferred alternative will impact hunting opportunity of pintail.

Service Response: There was clear support for the preferred alternative, to establish and review regulatory packages for five-year set intervals, for the component regarding the frequency of review and adoption of duck regulatory packages. The Service intends to implement this process in a similar manner to the one it has used for many years for zones and split seasons. A schedule will establish the year in which changes to regulatory packages will be considered, and the Service will work with the Flyways and other interested constituents in the year(s) leading up to the year for changes to evaluate proposals for package changes. Many specific issues that were raised by respondents to the DSEIS (i.e., equitability, possession limits, etc.) will be addressed during this review process. Individual harvest strategies (i.e., scaup, pintails, canvasbacks) will not be considered on this schedule, but will be reviewed and revised on an 'as needed' basis when the Service and Flyways agree that new information warrants such consideration. A common general comment to the DSEIS was that the document did not integrate the human dimension into the development of migratory bird hunting regulations. The FSEIS now contains a section in Chapter 2 that addresses this human aspect (see pages 24-25). The Service believes that it is

through the package review process that the greatest opportunities exist for direct incorporation of public input coordinated with the States.

Table 7.2. Summary of all comments received in response to the frequency of review and adoption of duck regulatory packages. The numbers in the column represent the number of times a particular comment was made.

Frequency of review and adoption of						
duck regulatory packages						
Comment	FLYWAY	STATES	EPA/CWS	NGOs	INDIV.	TOTAL
Support preferred alternative	5	8		1		14
Support preferred but suggests				1		1
changes				1		1
Non-committal/no comment			2	1	3	6
Specific comments/concerns						
Review differences in season length and						
bag limit across flyways to assure		2				2
equitable hunting to all						
Provide info on how packages could be						
revised; give specific steps to how 5-year	2					2
changes would be made						
Rename the component and include	1	1				2
possession limits	1	1				
5-years may be too often				1		1
Need more explanation of how this will				1		1
impact hunting opportunity of pintail				1		1
The 5 year cycle for duck packages						
should be on a different timeline from	1					1
zones and splits						
Specify bag limits for species with		1				1
specific harvest strategies		1				1
What about youth days		1				1
Should include a review of regulations						
used in other species specific harvest		1				1
strategies						
Should include an evaluation of hunter		1				1
preference information		1				1

7.2.3 Component 3. Stock-Specific Harvest Strategies.

Preferred alternative. Continue use of currently employed stock-specific harvest strategies and develop new strategies when necessary.

Public Comments: The preferred alternative received 38% support, 19% support pending changes/clarification, 14% opposition, and 29% no comment responses.

The most common response to the preferred alternative was a request that it be broadened to include a provision for periodic review of strategies that could also result in the elimination of strategies. In

addition, there was a desire to see a discussion on how the strategies should be used, designed and reviewed, as well as a section that states the criteria for developing new strategies.

Table 7.3. Summary of all comments received in response to stock specific harvest strategies. The numbers in the column represent the number of times a particular comment was made.

Stock specific harvest strategies						
Comment	FLYWAY	STATES	EPA/CWS	NGOs	INDIV.	TOTAL
Support preferred alternative	1	6	1	1,000	ZI (ZI) V	8
Support preferred alternative pending changes	2	1		1		4
Does not support preferred	1	1			1	3
Non-committal/no comment	1		1	2	2	6
Specific comments/concerns						
Broaden to include provision for periodic review of strategies (that could also result in elimination of strategies)	2	3				5
Prefers a modified/different alternative that is not in the SEIS	1	2				3
Provide suggestions on how the strategies should be used, designed and reviewed; state criteria for developing new strategies	1	2				3
Support preferred ONLY IF it also allows for eliminating stock specific strategies				1		1
Concerned with the suggestion that the stock specific harvest strategies are the only form of managing harvests with species with lower harvest potential	1					1
Provide an alternative that includes a tribe-specific strategy					1	1
SEIS should not assume a direct relationship between harvest and population status		1				1
Revisit current strategies and determine if they are really necessary		1				1
Alternative 1 is similar to 3; both are detrimental to hunter satisfaction		1				1
Harvest strategies are expensive, non- beneficial and distracting		1				1
Take a riskier approach that may allow some populations to drop below optimal levels to sustain hunter satisfaction		1				1
The Harvest Management Working Group should be in charge of the review		1				

Service Response: The Service appreciates the general support for the preferred alternative for this component of the regulations process as expressed by those who commented on the DSEIS. Although the Service understands the viewpoints of those who commented that existing strategies should be periodically reviewed and evaluated, it does not envision this activity being done on a rigid schedule. Rather, evaluations will only be conducted when warranted by new biological information and when supported by Flyway Councils or broad-based public input. The Service's goal is to minimize the development of new strategies and eliminate strategies that have become obsolete or are no longer useful.

7.2.4 Component 4. Special Regulations.

Preferred alternative. Eliminate experimental evaluation requirements for special regulations on overabundant resident Canada geese in September, except for areas where previous evaluations indicate an unacceptable level of take of migrant Canada geese, and in areas which have not conducted evaluations where one could reasonably expect an unacceptable level of take of migrant Canada geese (e.g., areas in northern states). All Special September Canada goose seasons require Flyway Council endorsement and Flyway Councils may request evaluations as part of the approval process if they believe such evaluations to be warranted. Additionally, if conditions are believed to have changed, new evaluations can be conducted for areas in which prior evaluations failed with respect to the take of migrant Canada geese. The Service may periodically re-evaluate existing special regulations for other species/stocks on a case-by-case basis to determine whether they are still justified, and will continue to require experiments for any other types of new special regulations.

Public Comments: The preferred alternative received 62% support, 5% support pending changes/clarification, 5% opposition, and 28% no comment responses.

The responses to the preferred alternative for this component were primarily requests for editorial changes and clarifications (i.e., define 'special seasons', clarify youth waterfowl days, specify the criteria used to determine if special duck seasons can be permitted within states, etc.). Some reviewers requested that the Service clarify the statement "require experiments for any new special regulations not involving resident Canada geese," and specify the criteria used to determine if special duck seasons can be permitted within states.

Table 7.4. Summary of all comments received in response to special regulations. The numbers in the

column represent the number of times a particular comment was made.

Special regulations				37.67.5	****	
Comment	FLYWAY	STATES	EPA/CWS	NGOs	INDIV.	TOTAI
Support preferred alternative	5	7		1		13
Support preferred alternative pending		1				1
changes		1				1
Does not support preferred				1		1
Non-committal/no comment			2	1	3	6
Specific comments/concerns						
Define 'special season'	1	3				4
Clarify youth waterfowl days	2					2
Clarify definition of 'special regulation'; definition is different than SEIS 88	2					2
Clarify "require experiments for any new						
special regulations not involving resident		2				2
Canada geese"						
Specify the criteria used to determine if						
special duck seasons can be permitted		2				2
within states						
Clarify the criteria needed to request or	1					1
implement a special season	1					1
Invest the time/energy elsewhere				1		1
Define 'case-by-case' basis	1					1
Provide criteria for early duck seasons	1					1
Discuss impacts on hunter participation	1					1
Re-evaluate special season regulations						
and ensure equitable opportunities across		1				1
flyways						
For early duck seasons there should be		_				
flexibility to expand the implementation		1				1
of these seasons to other states						
What is the criteria of a "production"						
state and why are no teal seasons		1				1
permitted in production states?						
Give more weight to hunter participation		1		1		1
and satisfaction		1				1
Enable states to shift some harvest from						
within the 60 day season framework to				1		
special seasons that may provide more		1				1
benefits to hunter recruitment and						
retention						

Service Response: Material has been added to the FSEIS to clarify the term 'special season regulations' and to include youth waterfowl days in this definition. In SEIS 88, the term 'Special Regulations' was used to refer to any modifications of the framework regulations, such as zones and splits, special seasons, and bonus birds. FSEIS 2013 describes zones and splits and special seasons separately, thereby forgoing the use of the term 'special regulations' entirely. The Service has added additional clarification to these terms in Chapter 2, section 2.1.1.7 of the text of the Final SEIS.

The Service believes that many of the specific comments concerning special regulations would be best addressed during the periodic evaluations described above. Many of these comments are specific to existing special seasons (i.e., teal seasons) and should be addressed during a periodic evaluation of this specific season. The Service does not believe it should establish guidance in these cases in advance of providing the opportunities for adequate discussion with the Flyway Councils and the general public. The Service notes that implementation or modification of special seasons for ducks is always an option for States and Flyway Councils to pursue, provided that there is proof that the season or modification is biologically justified. Based on the discussion provided in SEIS 88, however, the Service continues to support implementation of these seasons only when clear objectives have been established, an adequate experimental design with associated statistical procedures to evaluate the effects of the season has been developed, and decision criteria are established to determine whether objectives are met in the experimental evaluation.

7.2.5 Component 5. Management Scale for the Harvest of Migratory Birds.

Preferred alternative. Maintain the current scale of management for all migratory bird species.

Public Comments: The preferred alternative received 62% support, 14.5% support pending changes/clarification, and 23.5% no comment responses.

The Service's preferred alternative (Alternative 1; no change) for the management scale of migratory bird species received strong support. Among the respondents, those that did not support the preferred alternative did not reject it directly, but instead proposed a modified Alternative 1. For some, this modification included an allowance for within-Flyway regulatory options for duck hunting regulations. For others, support for the preferred alternative would occur if the alternative included a provision for further refinement when necessary and supported by data and monitoring efforts.

Service Response: The Service appreciates the general support for the preferred alternative expressed by the majority of those who chose to comment on this component. The Service recognizes the desire of some to pursue further geographic refinement of regulatory structure when warranted by biological information. However, the Service believes that we are at the practical limits of what can be accomplished in an affordable and effective manner with the present limits of geographic refinement and does not support further geographic regulatory subdivisions.

Table 7.5. Summary of all comments received in response to the management scale for the harvest of migratory birds. The numbers in the column represent the number of times a particular comment was made.

Management Scale for the Harvest of						
Migratory birds						
Comment	FLYWAY	STATES	EPA/CWS	NGOs	INDIV.	TOTAL
Support preferred alternative	4	6	1	2		13
Support preferred alternative pending changes	1	2				3
Does not support preferred						
Non-committal/no comment			1	1	3	5
Specific comments/concerns						
Include a provision for further refinement	2	3				5
Prefers a modified/different alternative that is not in the SEIS	1	2				3
Service needs to work with States to implement monitoring programs and performance for mallard stock				1		1
Define management scale	1					1
Recognize the value for states to choose from two or more harvest strategies (a standard package and a more conservative simplified package).	1					1
Component is not well defined and alternatives are not clear.	1					1
Specify need for scheduled reviews and revisions as new info becomes available, with the goal of broadening management scale		1				1
Include wording that allows for "new strategies when necessary"		1				1

7.2.6 Component 6. Zones and Splits.

Preferred alternative. Continue the current use of zones and split seasons and the five-year schedule for consideration of changes for ducks and doves within established zones/splits guidelines. Goose and crane zones may be adjusted annually.

Public Comments: The preferred alternative received 57% support, 10% opposition, and 33% no comment responses.

Most respondents supported the preferred (no change) alternative. Those that did not support the preferred alternative (or any alternative) stated that they could not do so because the current alternatives fail to address the inequities in hunting opportunity across states. In addition, one respondent asserts that the FSEIS should provide a process to change the guidelines for zones and split season options since the DSEIS fails to do so. Ultimately, the states that do not support the preferred alternative believe that the

determination of duck hunting zones and splits should be determined by the state, and claim that this level of management will not negatively affect bird populations, but will increase hunter satisfaction. Other comments (see Table 7.6) include requests for clarifications/editorial changes which, when appropriate, were updated throughout the document.

Service Response: The Service appreciates the support of the majority of the respondents for the preferred alternative for this component of the regulatory process. The Service intends that the open season be specific to choosing from the established criteria described in the *Federal Register* for zones and split seasons. The Service would expect that changes to the criteria would be the subject of a separate Environmental Assessment that would be undertaken only when the Service, Flyways and public believed such a new evaluation was warranted as was recently done (U.S. Department of the Interior 2011). The Service would continue to recognize those "grandfathered" arrangements in zone and split configuration that are presently recognized.

Table 7.6. Summary of comments received in response to zones and split seasons. The numbers in the

column represent the number of times a particular comment was made.

Zones and Splits						
Comment	FLYWAY	STATES	EPA/CWS	NGOs	INDIV.	TOTAL
Support preferred alternative	5	6		1		12
Support preferred alternative pending						
changes						
Does not support preferred		2				2
Non-committal/no comment			2	2	3	7
Specific comments/concerns						
Include a process for changing the	1	1				2
guidelines themselves	1	1				2
Discuss if the 5 year changes would be						
for the criteria themselves, or just the	1					1
season options within states						
The cycle for duck packages should be						
on a different timeline than the review of	1					1
AHM packages						
State that guidelines should be reviewed		1				1
at least every 10 years		1				1
Prefers a modified/different alternative		1				1
that is not in the SEIS		1				1
Grandfathered status should be retained						
for states that have more than three		1				1
zones with splits						
Would have supported an alternative that						
would have allowed adjustments to		1				1
configurations for all migratory birds on		1				1
a 3-year schedule						
This is more of a hunter management vs.				1		1
harvest management strategy				1		1

7.2.7 Component 7. Subsistence Harvest Regulatory Process.

Preferred alternative. Allow a spring-summer subsistence hunting season with regulations necessary to ensure the long-term conservation of the migratory bird resource.

Public Comment: The preferred alternative received 71% support, and 29% no comment responses. No questions or concerns were raised.

Service Response: The Service appreciates the support of the majority of the respondents for the preferred alternative for this component of the regulatory process.

Table 7.7. Summary of comments received in response to subsistence harveSt. The numbers in the column represent the number of times a particular comment was made.

Subsistence Harvest						
Comment	FLYWAY	STATES	EPA/CWS	NGOs	INDIV.	TOTAL
Support preferred alternative	5	8		2		15
Non-committal/no comment			2	1	3	6

7.2.8 General Comments

Public Comments: The most commonly made suggestion for improvement of the DSEIS involved including a discussion on the human dimension. Specifically, respondents would like the Service to explicitly recognize the importance of hunters and the relationship between harvest management and number of hunters, acknowledge the importance of duck stamps, non-Federal programs, private land owners, etc. in habitat management and conservation, and discuss coherence between harvest, habitat, and hunters. Respondents also took issue with some decisions regarding yield curves, suggesting that not all species should be managed at the right shoulder. A couple of respondents believe that basic regulations (especially means and methods of take) should be included in the FSEIS and, if not, that the Service should review the basic regulations in another process soon. Another request was that additional information on sea ducks, especially regarding their wintering and breeding habitats, be included in the FSEIS.

Service Response: The Service agrees that insufficient attention was paid to the human dimensions aspect of the regulatory process. A discussion has been added to Section 2.1.3.2 (Participants in the Process) to describe how the human dimension aspect is integrated with habitat and population management to form the three critical components of waterfowl management in North America.

The Service agrees that in those special cases where overabundance of birds is an issue, species should not be managed on the right shoulder of the yield curve, and that the specific point on the right

shoulder of the yield curve should be the subject of open discussion prior to establishment. The Service believes that there may be reasons to have separate points for different species or that there may be reasons to change these points over time. Thus, the Service supports review and alteration of the specific yield curve point used in a particular strategy on an 'as needed' basis.

With regard to sea ducks, the Service would note that the FSEIS is not intended to be an exhaustive biological review of all hunted migratory game birds. The Service has reviewed the duck section and has added some additional information on the breeding and wintering habitats used by sea ducks in response to the comments received on this issue in Chapter 4, section 4.1.1.1.

The Service does not believe that the gulf coast oil spill or any other natural event that would occur on an infrequent basis should be addressed in this programmatic FSEIS. The potential population level impacts of such rare events will be dealt with in determining the appropriate level of take during the annual regulations process, and harvest would be adjusted to address any population level impacts. The purpose of this FSEIS is to establish the process by which all available population information would be considered in determining allowable harvest levels based on the best biological information available at the time that regulations are established. The Service notes that far less than 1% of the birds known to have died as a result of the oil spill were from harvested species. In addition, the total number of harvested species that died as a result of the spill was considerably less than 100 (DOI-ERDC NRDA 2011).

Table 7.8. Summary of general comments on the 2010 Draft SEIS (DSEIS) on the Issuance of Annual Regulations Permitting the Hunting of Migratory Birds. The numbers in the column represent the number of times a particular comment was made.

General comments	FLYWAY	STATES	EPA/CWS	NGOs	INDIV.	TOTAL
Should explicitly recognize importance of hunters and relationship between harvest management and number of hunters; model this, show data	4	3		1		8
The human dimensions element should be acknowledged explicitly, as it is in the North American Waterfowl Management Plan	3	3		1		7
Acknowledge the importance of duck stamps, programs, private owners, etc in habitat management and conservation	2	2		1		5
Discuss coherence between harvest, habitat and hunters.	1	3				4
Not all species should be managed at the right of the derived yield curves; several criteria need to be defined (such as the point on the shoulder)	1	1		1		3

(continued)

Table 7.8. (*continued*) Summary of general comments on the 2010 Draft SEIS (DSEIS) on the Issuance of Annual Regulations Permitting the Hunting of Migratory Birds. The numbers in the column represent the number of times a particular comment was made.

General comments	FLYWAY	STATES	EPA/CWS	NGOs	INDIV.	TOTAL
SEIS should address basic regulations	2	1				3
Accept more risks to waterfowl (they are	1	1				2
easier to recover than the loss of hunters)	1	1				2
Bag limits reduced/drakes only				1	1	2
Clarify what is an acceptable lower						
threshold for populations as well as an	1					1
optimal size						
Final SEIS should outline a regulatory						
process that will better meet the goals of		1				1
objective 5 (equitable hunting		1				1
opportunities)						
Ban robo-duck spinning decoy					1	1
Change hunt start time 30 minutes later in					1	1
the a.m.					1	*
Seasons should be reduced to 50 days					1	1
total					1	-
Create a 3 rd zone with its own split date in					1	1
WI					1	-
Submit supplemental EIS in response to				1		1
oil spill				1		•
Extend the comment time					1	1
Include description of habitat for sea					1	1
ducks					1	-
Discuss consequences of hunting						
mortality with due regard for zones of					1	1
temperature						
Remove sea ducks from the prairie					1	1
pothole section						•

CHAPTER 8

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CHAPTER 9

CONSULTATION AND COORDINATION

Copies of the draft of SEIS 2010 were sent to the following agencies, organizations, and individuals for review.

Federal Agencies

Canadian Wildlife Service

Department of Defense

Army Corps of Engineers

Department of the Interior

Bureau of Indian Affairs

Bureau of Land Management

Bureau of Reclamation

National Park Service

Federal Aviation Administration

U.S. Department of Agriculture

Forest Service

Animal and Plant Health Inspection Service; Wildlife Services

U.S. Environmental Protection Agency

Flyway Councils

Atlantic Flyway Council

Central Flyway Council

Mississippi Flyway Council

Pacific Flyway Council

Flyway Council Chairmen

Flyway Council Technical Section Chairmen

State/Provincial Agencies

Alabama Department of Conservation and Natural Resources

Alaska Department of Fish and Game

Alberta Natural Resource Services

Arizona Game and Fish Department

Arkansas Game and Fish Commission

British Columbia Ministry of Environment and Parks

California Department of Fish and Game

Colorado Division of Wildlife

Connecticut Department of Environmental Protection

Delaware Division of Fish and Wildlife

Florida Fish and Wildlife Conservation Commission

Georgia Department of Natural Resources

Government of Nunavut Department of Environment

Government of Newfoundland and Labrador Environment and Conservation Department

Government of Northwest Territories Department of Environment and Natural Resources

Government of Northwest Territories Wildlife and Fisheries Division

Hawaii Division of Forestry and Wildlife

Idaho Department of Fish and Game

Illinois Department of Natural Resources

Indiana Department of Natural Resources

Iowa Department of Natural Resources

Kansas Department of Wildlife and Parks

Kentucky Department of Fish and Wildlife Resources

Louisiana Department of Wildlife and Fisheries

Maine Department of Inland Fisheries and Wildlife

Manitoba Department of Natural Resources and Energy

Maryland Department of Natural Resources

Massachusetts Division of Fisheries and Wildlife

Michigan Department of Natural Resources

Minnesota Department of Natural Resources

Mississippi Department of Wildlife, Fisheries and Parks

Missouri Department of Conservation

Montana Department of Fish, Wildlife and Parks

Nebraska Game and Parks Commission

Nevada Division of Wildlife

New Brunswick Department of Natural Resources

New Hampshire Fish and Game Department

New Jersey Division of Fish and Wildlife

New Mexico Department of Game and Fish

New York Department of Environmental Conservation

North Carolina Wildlife Resources Commission

North Dakota Game and Fish Department

Nova Scotia Department of Natural Resources

Ohio Division of Natural Resources

Oklahoma Department of Wildlife Conservation

Ontario Ministry of Natural Resources

Oregon Department of Fish and Wildlife

Pennsylvania Game Commission

Prince Edward Island Department of Environment, Energy, and Forestry

Puerto Rico Department of Natural and Environmental Resources

Ouebec Ministère des Ressources Naturelles et de la Faune

Rhode Island Division of Fish and Wildlife

Saskatchewan Environment and Resource Management

South Carolina Department of Natural Resources

South Dakota Game, Fish and Parks Department

Tennessee Wildlife Resources Agency

Texas Parks and Wildlife Department

Utah Division of Wildlife Resources

Vermont Fish and Wildlife Department

Virginia Department of Game and Inland Fisheries

Virgin Islands Division of Fish and Wildlife

Washington Department of Fish and Wildlife

West Virginia Division of Natural Resources

Wisconsin Department of Natural Resources

Wyoming Game and Fish Department

Yukon Department of Renewable Resources; Wildlife

Tribal

Aleutian/Pribilof Island Association

Association of Village Council Presidents

Bristol Bay Native Association

Chugach Regional Resources Commission

Colorado River Indian Tribes Department of Fish and Game

Confederated Salish and Kootenai Tribes of the Flathead Nation

Copper River Native Association

Crow Creek Sioux Tribe

Fond du Lac Band of Lake Superior Chippewa Tribe

Grand Transverse Band of Ottawa and Chippewa Indians

Great Lakes Indian Fish and Wildlife Commission

Kalispel Tribe Kalispel Natural Resources Department

Kawerak, Inc.

Leech Lake Reservation

Lower Brule Sioux Tribe Department of Wildlife, Fish and Recreation

Maniilaq Association

National Congress of American Indians

National Tribal Chairman's Association

Native American Rights Fund

North Slope Borough

Oneida Tribe of Indians of Wisconsin

Point No Point Treaty Tribes

Seminole Tribe of Florida

Southeast Inter-tribal Fish & Wildlife Commission

Squaxin Island Tribe

Sun'aq Tribe of Kodiak

Swinomish Indian Tribal Community

Tanana Chiefs Conference

The Jicarilla Apache Tribe

The Klamath Tribes; Natural Resources

The Navajo Nation

The Shoshone-Bannock Tribes

The Tulalip Tribes of Washington

Tulalip Department of Natural Resources

White Earth Reservation

White Mountain Apache Tribe

Yankton Sioux Tribe

Organizations and Individuals

Copies are available to organizations and individuals via a link on the Division of Migratory Bird Management website: http://www.fws.gov/migratorybirds/



CHAPTER 10

LITERATURE CITED

- Abraham, K.F. and R.L. Jefferies. 1997. High goose populations: causes, impacts and implications. Pp. 7-72 *in* B.D.J. Batt, ed. Arctic ecosystems in peril: report of the Arctic Goose Habitat Working Group. Arctic Goose Joint Venture Special Publication. U.S. Fish and Wildlife Service, Washington, D.C. and Canadian Wildlife Service, Ottawa, Ontario.
- _____, J.O. Leafloor and D.H. Rusch. 1999. Molt migrant Canada geese in northern Ontario and western James Bay. J. Wildlife Manage. 63(2):649-655.
- Ackerman, J.T. 2002. Of mice and mallards: positive indirect effects of coexisting prey on waterfowl nest success. Oikos 99(3):469-480.
- _____, J.M. Eadie, M.L. Szymanski, J.H. Caswell, M.P. Vrtiska, A.H. Raedeke, J.M. Checkett, A.D. Afton, T.G. Moore, F.D. Caswell, R.A. Walters, D.D. Hamburg and J.L. Yee. 2006. Effectiveness of spinning-wing decoys varies among dabbling duck species and locations. J. Wildlife Manage. 70(3):799-804.
- *Ad hoc* Eastern Population Tundra Swan Committee. 2007. A management plan for the Eastern Population of Tundra Swans. Unpublished report.
- Agler, B.A., S.J. Kendall, P.E. Seiser and D.B. Irons. 1994. Monitoring seabird populations in areas of oil and gas development on the Alaskan continental shelf: estimates of marine bird and sea otter abundance in lower Cook Inlet, Alaska during summer 1993 and winter 1994. U.S. Fish and Wildlife Service, Migratory Bird Management, Anchorage, AK. Unpublished report.
- Alaska Shorebird Group. 2008. Alaska Shorebird Conservation Plan. Version II. Alaska Shorebird Group, Anchorage, AK.
- Aldrich, J.W. 1993. Classification and distribution. Pp. 47-54 *in* T.S. Baskett, M.W. Sayre, R.E. Tomlinson, and R.E. Mirarchi, eds. Ecology and management of the mourning dove. Stackpole Books, Harrisburg, PA.
- Alisauskas, R.T. and T.W. Arnold. 1994. American coot. Pp. 127-143 *in* T.C. Tacha and C.E. Braun, eds. Migratory shore and upland game bird management in North America. Int. Assoc. Fish and Wildl. Agencies, Washington, D.C.
- Amundson, C.L. and D.H. Johnson. 2010. Assessment of the Eastern Population Greater Sandhill Cranes (*Grus canadensis tabida*) Fall migration Survey, 1979-2009. Report to the U.S. Fish and Wildlife Service, Migratory Bird Management, Region 3. 21 pp.
- Anderson, D.R. 1975. Optimal exploitation strategies for an animal population in a Markovian environment: a theory and an example. Ecol. 56:1281-1297.
- . 1985. Constrained optimal exploitation: a quantitative theory. Pp. 105-116 *in* S.L. Beasom and S. F. Roberson, eds. Game Harvest Management. Ceasar Kleburg Wildl. Res. Inst., Kingsville, TX.
- and K.P. Burnham. 1976. Population ecology of the mallard.VI. The effect of exploitation on survival. U.S. Fish and Wildlife Service, Resource Publication 128, Washington, D.C. 66 pp.
- Anderson, D.W., D.G. Raveling, R.W. Risebrough and A.M. Springer. 1984. Dynamics of low-level organochlorines in adult cackling geese over the annual cycle. J. Wildlife Manage. 48:1112-1127.
- Ankney, C.D. 1996. An embarrassment of riches: too many geese. J. Wildlife Manage. 60(2):217-223.
- Arctic Climate Impact Assessment (ACIA). 2005. Arctic Climate Impact Assessment. Cambridge University Press, NY. 1042 pp.
- Arnold, K.A. 1994. Common snipe. Pp. 117-125 *in* T.C. Tacha and C.E. Braun, eds. Migratory shore and upland game bird management in North America. Int. Assoc. Fish and Wildl. Agencies, Washington, D.C.
- Atlantic Flyway Council. 2008. A management plan for the Atlantic Population of Canada geese. Atlantic Flyway Council, March 2008, U.S. Fish and Wildlife Service, Laurel, MD.

- Atlantic and Mississippi Flyway Councils. 2010. Management Plan for the Eastern Population of Sandhill Cranes. Special Report in files of the Mississippi Flyway Representative. Minneapolis, MN.
- Austin, J.E., A.D. Afton, M.G. Anderson, R.G. Clark, C.M. Custer, J.S. Lawrence, J.B. Pollard and J.K. Ringelman. 2000. Declining scaup populations: issues, hypotheses, and research needs. Wildl. Soc. Bull. 28(1):254-263.
- Baldassarre, G.A. and E.G. Bolen. 1994. Waterfowl Ecology and Management. John Wiley & Sons, Inc., NY
- Banks, R.C. 1979. Human related mortality of birds in the United States. U.S. Department of the Interior, Fish and Wildlife Service, Special Scientific Report Wildlife No. 215. Washington, D.W.
- Bannor, B.K. and E. Kiviat. 2002. Common moorhen (*Gallinula chloropus*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved in 2008 from: http://bna.birds.cornell.edu/bna/species/685.
- Batt, B.D.J., editor. 1997. Arctic ecosystems in peril: report of the Arctic Goose Habitat Working Group. Arctic Goose Joint Venture Special Publication. U.S. Fish and Wildlife Service, Washington, D.C. and Canadian Wildlife Service Ottawa, Ontario. 120 pp.
- ______, editor. 1998. The greater snow goose: report of the Arctic Goose Habitat Working Group. Arctic Goose Joint Venture Special Publication. U.S. Fish and Wildlife Service, Washington, D.C. and Canadian Wildlife Service, Ottawa, Ontario. 88 pp.
- Bellrose, F.C. 1980. Ducks, geese, and swans of North America, 3rd ed. Stackpole Books, Harrisburg, PA. 540 pp.
- Benning, D.S. and D.H. Johnson. 1987. Recent improvements to sandhill crane surveys in Nebraska's central Platte River Valley. Pp. 10-16 *in* J.C. Lewis, ed. Proc. 1985 Crane Workshop, Platte Riv. Whooping Crane Maint. Trust, Grand Island, NE. 415 pp.
- Bevanger, K., 1994. Three questions on energy transmission and avian mortality. Fauna norv. Ser. C, Cinclus 17:107-114.
- Beyer, W.N, D.J. Audet, A. Morton, J.K. Campbell and L. LeCaptain. 1998. Lead exposure of waterfowl ingesting Coeur d'Alene River basin sediments. J. Environ. Qual. 27:1533-1538.
- Bidrowski, T.F. and G.R. Costanzo. 2007. 2006-07 Tundra swan hunting season in Virginia. Virginia Department of Game and Inland Fisheries. Unpublished report.
- Bielefeld, R.R. and R.R. Cox, Jr. 2006. Survival and cause-specific mortality of adult female mottled ducks in east-central Florida. Wildl. Soc. Bull. 34(2):388-394.
- _____. 2007. Habitat use, movements, and survival of Florida mottled duck (*Anas fulvigula fulvigula*) females and characterization of wetlands used by dabbling ducks in south Florida. Unpublished research proposal, Florida Fish and Wildlife Conservation Commission, 10pp.
- 2009. 2009 Mottled Duck Survey Report. FWC/FWRI F filecode: F2641-09, Florida Fish and Wildlife Conservation Commission, 8pp.
- Bishop, R.C. 1987. Economic values defined. Pp. 24-33 *in* D.J. Decker and G.R Goff, eds. Valuing wildlife: Economic and social perspectives. Westview Press, Boulder, CO. 424 pp.
- Blanchong, J.A., M.D. Samuel and G. Mack. 2006. Multi-species patterns of avian cholera mortality in Nebraska's rainwater basin. J. Wildlife Dis. 42(1):81-91.
- Bolen, E.G. 2000. Waterfowl management: vesterday and tomorrow. J. Wildl. Manage. 64(2):323-335.
- Boomer, G.S., F.A. Johnson, and J.A. Royle. 2004. Surplus production modeling of scaup population dynamics. Unpublished Progress Report, U.S. Fish and Wildlife Service, Laurel, MD. 24 pp.
- and F.A. Johnson. 2007. A proposed assessment and decision-making framework to inform scaup harvest management. Unpublished report. U.S. Fish and Wildlife Service, Laurel, MD. 26 pp.
- _____, F.A. Johnson, M.D. Koneff, T.A. Sanders and R.E. TroSt. 2007. A process to determine scaup regulatory alternatives. Unpublished Scoping Document. U.S. Fish and Wildlife Service, Laurel, MD. 20 pp.
- Bowman, T.D., R.A. Stehn and K.T. Scribner. 2004. Glaucous gull predation of goslings on the Yukon-Kuskokwim Delta, Alaska. Condor 106(2):288-298.

- Boyd, H. 1971. Observations on duck hunting in eastern Canada in 1968 and 1969. Canadian Wildlife Service Occasional Paper No. 12:1-23.
- Boydstun, C.P. and C.A. DeYoung. 1985. Distribution and relative abundance of white-tipped doves in South Texas. SouthweSt. Nat. 30(4): 567–571.
- Branch of Game Management. 1954. Survey of band-tailed pigeon populations in Arizona, Colorado, and New Mexico with notes from Utah 1953. U.S. Fish and Wildlife Service, Albuquerque, NM.
- _____. 1955. Survey of band-tailed pigeon populations in Arizona, Colorado, New Mexico and Utah 1954. U.S. Fish and Wildlife Service, Albuquerque, NM.
- _____. 1956. Survey of band-tailed pigeon populations in Arizona, Colorado, New Mexico and Utah 1955. U.S. Fish and Wildlife Service, Albuquerque, NM.
- . 1957. Survey of band-tailed pigeon populations in Arizona, Colorado, New Mexico and Utah 1956. U.S. Fish and Wildlife Service, Albuquerque, NM.
- Braun, C.E. 1994. Band-tailed pigeon. Pp. 60–74 *in* T.C. Tacha and C.E. Braun, eds. Migratory shore and upland game bird management in North America. Int. Assoc. Fish and Wildl. Agencies, Washington, D.C.
- Braund, S.R. 1993a. North Slope subsistence study: Barrow, 1987, 1988, 1989. Final report submitted to the Minerals Management Service, Anchorage, AK, by S.R. Braund and Associates with the Institute of Social and Economic Research, University of Alaska, Anchorage. Technical Report No. 149. 243 pp.
- _____. 1993b. North Slope subsistence study: Wainwright, 1988 and 1989. Final report submitted to the Minerals Management Service, Anchorage, by S.R. Braund and Associates with the Institute of Social and Economic Research, University of Alaska, Anchorage. Technical Report No. 149. 243 pp.
- Breaux, J. and C. Richmond. 2005. Louisiana's Coastal Wetland Vegetation Planting Program. Proceedings of the 14th Biennial Coastal Zone Conference. New Orleans, Louisiana. July 17 to 21, 2005.
- Brisbin, Jr., I.L. and T.B. Mowbray. 2002. American coot (*Fulica americana*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved in 2008 from: http://bna.birds.cornell.edu/bna/species/697a.
- Brown, W.M, R.C. Drewien and E.G. Bizaeu. 1987. Mortality of cranes and waterfowl from powerline collisions in the San Luis Valley, Colorado. Pp. 128-136 *in* J.C. Lewis, ed. Proc. 1985 crane workshop. Platte River Whooping crane Maintenance Trust, Grand Island, NE.
- and R.C. Drewien. 1995. Evaluation of two power line markers to reduce crane and waterfowl collision mortality. Wildl. Soc. Bull. 23(2):217-227.
- Brown, S., C. Hickey, B. Harrington and R. Gill, editors. 2001. The U.S. Shorebird Conservation Plan, 2nd edition. Manomet Center for Conservation Sciences, Manomet, MA.
- Brownie, C., D.R. Anderson, K.P. Burnham and D.S. Robson. 1985. Statistical inference from band recovery data--a handbook. 2nd ed. U.S. Fish and Wildlife Service Resource Publication No. 156.
- Burger, J. 1981. The effect of human activity on birds at a coastal bay. Biol. Conserv. 21:231-241.
- Caithamer, D.F., M. Otto, P.I. Padding, J.R. Sauer and G.H. Haas. 2000. Sea ducks in the Atlantic Flyway: Population status and a review of special hunting seasons. U.S. Fish and Wildlife Service, Laurel, MD. Unpublished report. 40 pp.
- Campbell, R.W., N.K. Dawe, I. McTaggart-Cowan, J.M. Cooper, G.W. Kaiser, M.C.E. McNall and G.E.J. Smith. 1997. The Birds of British Columbia. Vol. 3. Passerines: flycatchers through vireos. UBC Press, Vancouver, British Columbia. 693 pp.
- Carlisle, M. J. 1982. Nesting habitat of Sandhill Cranes in central Alberta. Pp. 44-55 *in* J. C. Lewis, ed. Proc. 1981 Int. Crane Workshop. Nat. Audubon Soc. Tavernier, FL.
- Carver, E. 2008. Economic impact of waterfowl hunting in the United States. Addendum to the 2006 national survey of fishing, hunting, and wildlife associated recreation. U.S. Fish and Wildlife Service. Washington D.C. 13 pp.

- Casazza, M.L., J.L. Yee, M.R. Miller, D.L. Orthmeyer, D. Yparraguirre and R.L. Jarvis. 2000. Development of reliable population indices for band-tailed pigeons. U.S. Geological Survey, Biological Resources Division, Western Ecological Research Center, Dixon, CA. Unpublished report.
- ______, D.L. Orthmeyer, M.R. Miller, C.T. Overton and R. Schmitz. 2003. Development of a reliable population index for Pacific Coast band-tailed pigeons. 2003 Final Report to the Webless Migratory Game Bird Research Program. U.S. Geological Survey, Biological Resources Division. Unpublished report.
- Caswell, J.H. and F.D. Caswell. 2004. Vulnerability of mallards to hunting with spinning-wing decoy in Manitoba. Wildlife Soc. B. 32(4):1297-1304.
- Central Flyway Council, Pacific Flyway Council, and Mississippi Flyway Council. 2006. Management Guidelines for the Mid-continent Population of Sandhill Cranes. Special Report in files of the Central Flyway Representative, Denver, CO.
- Central Valley Joint Venture. 2006. Central Valley Implementation Plan conserving bird habitat. U. S. Fish and Wildlife Service, Sacramento, CA, USA.
- Christensen, N.S., A.W. Wood, N. Voisin, D.P. Lettenmaier, and R.N. Palmer. 2004. The effects of climate change on the hydrology and water resources of the Colorado River Basin. Climatic Change 62:377-363.
- Ciaranca, M.A., C.C. Allin and G.S. Jones. 1997. Mute Swan (*Cygnus olor*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved in 2008 from: http://bna.birds.cornell.edu/bna/species/273.
- Clark, W.R. and T.R. Bogenschutz. 1999. Grassland habitat and reproductive success of ring-necked pheasants in northern Iowa. J. Field Ornithol. 70:380-392.
- Collins, D.P. and R.E. Trost, compilers. 2009. Pacific Flyway Data Book waterfowl harvests and status, hunter participation and success in the Pacific Flyway and United States. U.S. Fish and Wildlife Service, Portland, OR. Unpublished report. 145 pp.
- Collins, D.P., C.A. Palmer and R.E. Trost, compilers. 2011. Pacific Flyway Data Book waterfowl harvests and status, hunter participation and success in the Pacific Flyway and United States. U.S. Fish and Wildlife Service, Portland, OR. Unpublished report. 110 pp.
- Conway, C.J. and W.R. Eddleman. 1994. Virginia rail. Pp. 193-206 *in* T.C. Tacha and C.E. Braun, eds. Migratory shore and upland game bird management in North America. Int. Assoc. Fish and Wildl. Agencies, Washington, D.C.
- Cooper, T.R. and K. Parker. 2011. American woodcock population status, 2011. U.S. Fish and Wildlife Service, Laurel, MD. 17 pp.
- Corcoran, R.M., J.R. Lovvorn, M.R. Bertram and M.T. Vivion. 2007. Lesser scaup nest success and duckling survival on the Yukon Flats, Alaska. J. Wildlife Manage. 71:127-134.
- Cowardin, L. M., and D. H. Johnson. 1979. Mathematics and mallard management. J Wildlife Manage. 43:18-35.
- ______, D.S. Gilmer and C.W. Shaiffer. 1985. Mallard recruitment in the agricultural environment of North Dakota. Wildl. Monogr. 92:1-37.
- Crick, H.Q.P. 2004. The impact of climate change on birds. Ibis 146:48-56.
- Dahl, T.E. 1990. Wetland losses in the United States: 1780's to 1980's. U.S. Department of the Interior; Fish and Wildlife Service, Washington, D.C. 13 pp.
- _____. 2000. Status and trends of wetlands in the conterminous United States: 1986 to 1997. U.S. Department of the Interior; Fish and Wildlife Service, Washington, D.C. 82 pp.
- _____. 2006. Status and trends of wetlands in the conterminous United States: 1998 to 2004. U.S. Department of the Interior; Fish and Wildlife Service, Washington, D.C. 112 pp.
- Dahlgren, R.B., and C.E. Korschgen. 1992. Human disturbances of waterfowl: An annotated bibliography. U.S. Fish and Wildlife Service, Washington, D.C. Resour. Pub. No. 188. 62 pp.
- Decker, D.J. and G.R. Goff. 1987. Valuing Wildlife: Economic and social perspectives. Westview Press, Boulder, CO. 424 pp.

- and L.C. Chase. 1997. Human dimensions of living with wildlife A management challenge for the 21st century. Wildlife Soc. B. 25(4):788-795.
- DOI-ERDC NRDA. 2011. Deepwater Horizon Bird Impact Data from the Database, available at http://www.fws.gov/home/dhoilspill/pdfs/Bird%20Data%20Species%20Spreadsheet%2005122011.pdf.
- Dolton, D.D., R.D. Rau and K. Parker. 2007. Mourning dove population status, 2007. U.S. Fish and Wildlife Service, Laurel, MA.
- Dragoo, D.E., G.V. Byrd and D.B. Irons. 2006. Breeding status, population trends and diets of seabirds in Alaska, 2003. U.S. Fish and Wildlife Service, Report AMNWR 06/13, Homer, AK.
- ______, _____and _____. 2008. Breeding status, population trends and diets of seabirds in Alaska, 2005. U.S. Fish and Wildlife Service, Report AMNWR 08/03, Homer, AK.
- Drewien, R.C. and E.G. Bizeau. 1974. Status and distribution of greater sandhill cranes in the Rocky Mountains. J. Wildlife Manage. 38(4):720-742.
- W.M. Brown and D.S. Benning. 1996. Distribution and abundance of sandhill cranes in Mexico. J. Wildlife Manage. 60(2):270-285.
- ______, P.P. Thorpe, and D.S. Benning. 2005. September 2005 count of the Rocky Mountain Population of Greater Sandhill Cranes. Special Report in the files of the Pacific Flyway Representative. Portland, OR. 8 pp.
- DuBowy, P.J. 1988. Waterfowl communities and seasonal environments: temporal variability in interspecific competition. Ecology 69(5):1439-1453.
- Duebbert, H.F. and J.T. Lokemoen. 1976. Duck nesting in fields of undisturbed grass-legume cover. J. Wildlife Manage. 40:39-49.
- Dunks, J.H., R.E. Tomlinson, H.M. Reeves, D.D. Dolton, C.E. Braun and T.P. Zapatka. 1982. Migration, harvest, and population dynamics of mourning doves banded in the Central Management Unit, 1967–77. Spec. Sci. Rep. Wildl. 249. U.S. Fish and Wildlife Service, Washington, D.C. 128 pp.
- Earnst, S.L., R.A. Stehn, R.M. Platte, W.W. Larned and E.J. Mallek. 2005. Population size and trend of yellow-billed loons in northern Alaska. Condor 107:289-304.
- Eddleman, W.R. and C.J. Conway. 1994. Clapper rail. Pp. 167-179 in T.C. Tacha and C.E. Braun, eds. Migratory shore and upland game bird management in North America. Int. Assoc. Fish and Wildl. Agencies, Washington, D.C.
- Elden, R.C., W.V. Bevill, P.I. Padding, J.E. Frampton and D.L. Shroufe. 2002. Pp. 7-16 *in* J.M. Ver Steeg and R.C. Elden, compilers. Harvest Information Program: Evaluation and recommendations. Int. Assoc. Fish and Wildl. Agencies, Migratory Shore and Upland Game Bird Working Group, Ad Hoc Committee on HIP, Washington, D.C.
- Ely, C.R., D.C. Douglas, A.C. Fowler, C.A. Babcock, D.V. Derksen and J.Y. Takekawa. 1997. Migration behavior of tundra swans from the Yukon-Kuskokwim Delta, Alaska. Wilson Bull. 109: 679-692.
- Erickson, W.P., G.D. Johnson, M.D. Strickland, D.P. Young, Jr., K.J. Sernka and R.E. Good. 2001. Avian collisions with wind turbines: a summary of existing studies and comparisons to other sources of avian collision mortality in the United States. Prepared by Western EcoSystems Technology, Inc., Cheyenne, WY, for National Wind Coordinating Committee, c/o RESOLVE, Inc., Washington, D.C.
- _____, ____ and D.P. Young, Jr. 2005. A summary and comparison of bird mortality from anthropogenic causes with an emphasis on collisions. USDA Forest Service Gen. Tech. Rep. PSW-GTR-191. Albany, CA. USA.
- Euskirchen E.S., A.D. McGuire, F.S. Chapin, S. Yi, and C.C. Thompson. 2009. Changes in vegetation in northern Alaska under scenarios of climate change 2003-2100: Implications for climate feedbacks. Ecol. Appl. 19(4):1022-1043.
- Fallon, S.M. 2007. Genetic data and the listing of species under the U.S. Endangered Species Act. Conserv. Biol. 21(5):1186-1195.

- Fedynich, A.M., and R.D. Godfrey, Jr. 1988. Waterfowl mortality surveys on the Southern High Plains of Texas. SouthweSt. Nat. 33(2):185-191.
- Fredrickson, L.H. 1969. Mortality of coots during severe spring weather. Wilson Bull. 81(4):450-453.
- Fronczak, D. 2011. Waterfowl harvest and population survey data. Estimates of U.S. Harvest, hunting activity, and success derived from State-Federal cooperative harvest information program. U.S. Fish and Wildlife Service, DMBM, Bloomington, MN. 104 pp.
- Gander, H., and P. Ingold. 1997. Reactions of male alpine chamois *Rupicapra r. rupicapra* to hikers, joggers and mountain bikers. Biol. Conserv. 79:107-109.
- Garrettson, P.R. 2007. A proposed assessment and decision making framework to inform harvest management of wood ducks in the Atlantic and Mississippi Flyways. Division of Migratory Bird Management, 13 pp.
- and F.C. Rohwer. 2001. Effects of mammalian predator removal on production of upland-nesting ducks in North Dakota. J. Wildlife Manage. 65:398-405.
- Geist, V. 2006. The North American Model of Wildlife Conservation: A means of creating wealth and protecting public health while generating biodiversity. Pp. 285-293 *in* D.M. Lavigne, ed., Gaining ground: In pursuit of ecological sustainability. Guelph, Ontario, Canada: International Fund for Animal Welfare and University of Limerick, Ireland.
- Gendron, M.H. and B.T. Collins. 2007. National Harvest Survey website Version 1.2. Migratory Bird Populations Division, National Wildlife Research Centre, Canadian Wildlife Service, Ottawa, Ontario. Retrieved in 2008 from: http://www.cws-scf.ec.gc.ca/harvest/default_e.cfm.
- George, R.R. 1991. The adaptable whitewing. Tex. Parks Wildl. 49(9):10-15.
- ______, R.E. Tomlinson, R.W. Engel-Wilson, G.L. Waggerman and A.G. Spratt. 1994. White-winged dove. Pp. 29–50 *in* T.C. Tacha and C.E. Braun, eds. Migratory shore and upland game bird management in North America. Int. Assoc. Fish and Wildl. Agencies, Washington, D.C.
- ______, G.L. Waggerman, D.M. McCarty, R.E. Tomlinson, D. Blankenship and J.H. Dunks. 2000. Migration, harvest and population dynamics of white-winged doves banded in Texas and northeastern Mexico, 1950–1978. Texas Parks and Wildlife Department, Austin, TX.
- George, S.L., and K.R. Crooks. 2006. Recreation and large mammal activity in an urban nature reserve. Biol. Conserv. 133:107-117.
- Gill, J. A., K. Norris, and W. J. Sutherland. 2001. Why behavioural responses may not reflect the population consequences of human disturbance. Biol. Conserv. 97:265-268.
- Giroux, J-F, G. Gauthier, G, Costanzo and A. Reed. 1998. Impact of geese on natural habitats. Pp. 32-57 in B.D.J. Batt, ed. The greater snow goose: report of the Arctic Goose Habitat Working Group. Arctic Goose Joint Venture Special Publication. U.S. Fish and Wildlife Service, Washington, D.C. and Canadian Wildlife Service Ottawa, Ontario.
- Glick, P. 2005. The waterfowlers' guide to global warming, Washington, DC, National Wildlife Federation.
- Gray, B.T. 1992. Illegal waterfowl hunting in the Mississippi Flyway and recommendations for alleviation. Ph.D. Thesis, Mississippi State University, Starkville, MS.
- and R.M. Kaminski. 1994. Illegal waterfowl hunting in the Mississippi Flyway and recommendations for alleviation. Wildlife Monogr. 127. 60 pp.
- Greenwood, R.J., A.B. Sargeant, D.H. Johnson, L.M. Cowardin and T.L. Shaffer. 1995. Factors associated with duck nest success in the prairie pothole region of Canada. Wildlife Monogr. 128:1-57.
- Greij, E.D. 1994. Common moorhen. Pp. 145-157 *in* T.C. Tacha and C.E. Braun, eds. Migratory shore and upland game bird management in North America. Int. Assoc. Fish Wildl. Agencies, Washington, D.C.
- Groves, D.J., B. Conant, R.J. King and D. Logan. 1996. Trumpeter swan surveys on the Chugach National Forest 1995. Trumpeter Swan Society Newsletter 25:18-21.
- . 2010. The 2010 North American trumpeter swan survey. U.S. Fish and Wildlife Service, Denver, CO. Unpublished report.

- Guyn, K.L. and R.G. Clark. 1999. Factors affecting survival of northern pintail ducklings in Alberta. Condor 101:369-377.
 - and _____. 2000. Nesting effort of northern pintails in Alberta. Condor 102:619-628.
- Haas, G.H. 1977. Unretrieved shooting loss of mourning doves in north-central South Carolina. Wildl. Soc. Bull. 5:123-125.
- Hansen, J. 2007. Swan hunting season data, Montana, 2007 season. Montana Fish, Wildlife and, Parks. Unpublished report.
- Hanson, H. C. 1965. The giant Canada goose. Southern Illinois Univ. Press. Carbondale, IL. 226 pp.
- Harris, A. 2011. Trends in Hunting on Public and Private Land. Analysis paper based on the 2006 National Survey of Fishing, Hunting, and Wildlife Associated Recreation. U.S. Fish and Wildlife Service, Arlington, VA.
- Hawkins, A.S, R.C. Hanson, H.K. Nelson and H.M. Reeves, editors. 1984. Flyways: Pioneering Waterfowl Management in North America. U.S. Fish and Wildlife Service, Washington, D.C. 517 pp.
- Heitmeyer, M.E., D.P. Connelly and R.L. Pederson. 1989. The Central, Imperial, and Coachella Valleys of California. Pp. 475-505 *in* L.M. Smith, R.L. Pederson and R.M. Kaminski, eds. Habitat Management for Migrating and Wintering Waterfowl in North America. Texas Tech. Univ. Press, Lubbock.
- Helm, R.N. 1994. Purple Gallinule. Pp. 159-165 in T.C. Tacha and C.E. Braun, eds. Migratory shore and upland game bird management in North America. Int. Assoc. Fish Wildl. Agencies, Washington, D.C.
- Herkert, J.R. 1998. The influence of the CRP on grasshopper sparrow population trends in the mid-continental United States. Wildlife Soc. B. 26(2):227-231.
- Hestbeck, J.B., J.D. Nichols and R.A. Malecki. 1991. Estimates of movement and site fidelity using mark-resight data of wintering Canada geese. Ecology 72:523-533.
- Hilborn, R., C.J. Walters and D. Ludwig. 1995. Sustainable exploitation of renewable resources. Annu. Rev. Ecol. SySt. 26:45-67.
- Hogan, K.M. 1999. White-tipped dove (*Leptotila verreauxi*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved in 2008 from: http://bna.birds.cornell.edu/bna/species/436.
- Hollmén, T.E., J.C. Franson, P.L. Flint, J.B. Grand, R.B. Lanctot, D.E. Docherty, and H.M. Wilson 2003. An adenovirus linked to mortality and disease in long-tailed ducks (*Clangula hyemalis*) in Alaska. Avian Dis. 47(4):1434-1440.
- Holmes, C.E. 1996. Broken mammoth. Pp. 312-318 *in* F.H. West, ed. American beginnings, the prehistory and palaeoecology of Beringia. The University of Chicago Press, Chicago and London.
- Holmes, C.H., R. VanderHoek, and T.E. Dilley. 1996. Swan point. Pp 319-323 *in* F. H. West, ed. American beginnings, the prehistory and palaeoecology of Beringia. The University of Chicago Press, Chicago and London.
- Howell, S.N.G. and S. Webb. 1995. A guide to the birds of Mexico and northern Central America. Oxford University Press, NY.
- Inkley, D.B., M.G. Anderson, A.R. Blaustein, V.R. Burkett, B. Felzer, B. Griffith, J. Price, and T.L. Root. 2004. Global climate change and wildlife in North America. Wildlife Society Technical Review 04-2. The Wildlife Society, Bethesda, Maryland, USA. 26 pp.
- IPCC. 2007. Climate change 2007: synthesis report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Core Writing Team, R.K. Pachauri, and A. Reisinger, eds. IPCC, Geneva, Switzerland.
- Iverson, G.C., P.A. Vohs, and T.C. Tacha. 1985. Distribution and abundance of sandhill cranes wintering in western Texas. J. Wildl. Manage. 49:250-255.
- ______, and ______. 1987. Habitat use by mid-continent sandhill cranes during spring migration. J. Wildl. Manage. 51:448-458.
- Jarvis, R.L. and M.F. Passmore. 1992. Ecology of band-tailed pigeons in Oregon. U.S. Fish and Wildlife Service, Fish Wildl. Biol. Report 6. 38 pp.

- Johnsgard, P.A. 2010. Waterfowl of North America: Revised Edition. University of Nebraska, Lincoln. 159 pp.
- Johnson, D.H. and J.W. Grier. 1988. Determinants of breeding distributions of ducks. Wildlife Monogr. 100:1-37.
- and L.D. Igl. 1995. Contributions of the Conservation Reserve Program to populations of breeding birds in North Dakota. Wilson Bull. 107(4):709-718.
- Johnson, F.A., C.T. Moore, W.L. Kendall, J.A. Dubovsky, D.F. Caithamer, J.R. Kelley, Jr. and B.K. Williams. 1997. Uncertainty and the management of mallard harvests. J. Wildlife Manage. 61:203-217.
- and K. Williams. 1999. Protocol and practice in the adaptive management of waterfowl harvests. Conserv. Ecol. 3(1): 8. Retrieved in 2008 from: http://www.consecol.org/vol3/iss1/art8/.
- ______. 2001. Adaptive Regulation of Waterfowl Hunting in the United States. Pp. 113-131 *in* R.G. Stahl, Jr., R.A. Bachman, A.L. Barton, J.R. Clark, P.L. deFur, S.J. Ellis, C.A. Pittinger, M.W. Slimak and R.S. Wentsel, eds. Risk Management: Ecological Risk-based Decision-making. SETAC Press, Pensacola, FL.
- _____. 2008. Variation in population growth rates of mottled ducks in Texas and Louisiana: Report to the U. S. Fish and Wildlife Service. USGS Administrative Report, 26 pp.
- Johnson, G.D., W.P. Erickson, M.D. Strickland, M.F. Shepherd, D.A. Shepherd, and S.A. Sarappo. 2002. Collision mortality of local and migrant birds at a large-scale wind power development on Buffalo Ridge, Minnesota. Wildl. Soc. Bull. 30(3):879-887.
- Johnson, M.A. 2007. Summary of 2006 swan season in North Dakota. North Dakota Game and Fish Department. Unpublished report.
- Johnson, W.C., B. Werner, G.R. Guntenspergen, R.A. Voldseth, B. Millett, D.E. Naugle, M. Tulbure, R.W.H. Carroll, J. Tracy, and C. Olawsky. 2010. Prairie wetland complexes as landscape functional units in a changing climate. BioScience 60(2):128-140.
- Johnston, D.W. 1961. The biosystematics of American Crows. Univ. of Washington Press, Seattle, WA.
- Jones, K.L., G.L. Krapu, D.A. Brandt and M.V. Ashley. 2005. Population genetic structure in migratory sandhill cranes and the role of Pleistocene glaciations. Mol. Ecol. 14(9):2645-2657.
- Kelley, J.R, Jr., 1997. Wood duck population monitoring initiative: Final report. Atlantic Flyway Council, Mississippi Flyway Council, and U.S. Fish and Wildlife Service. Administrative Report, Laurel, MA, 248 pp.
- _____, D.C. Duncan and D.R. Yparraguirre. 2001. Distribution and abundance. Pp. 11-17 *in* T.J. Moser, ed. The status of Ross's geese. Arctic Goose Joint Venture Special Publication U.S. Fish and Wildlife Service, Washington, D.C. and Canadian Wildlife Service Ottawa, Ontario.
- ______, S.J. Williamson, M. Banker, D. Haukos, D. Krementz, D. McAuley, W. Palmer, T. PoSt. 2008. American Woodcock Conservation Plan. Association of Fish and Wildlife Agencies, Washington, D.C.
- Kendall, R. J., T.E. Lacher, Jr., C. Bunck, B. Daniel, C. Driver, C.E. Grue, F. Leighton, W. Stansley, P.G. Watanabe, and M. Whitworth. 1996. Environ. Toxicol. Chem. 15:4-20.
- Keppie, D.M. and C.E. Braun. 2000. Band-tailed pigeon (*Columba fasciata*). *In A. Poole and F. Gill, eds. The Birds of North America, No. 530. The Birds of North America, Inc., Philadelphia, PA.*
- Kessel, B. and D.D. Gibson. 1978. Status and distribution of Alaska birds. Studies in Avian Biology 1:1-100.
- Kinghorn, R.G. and J.A. Neff. 1948. Status of the band-tailed pigeon in Colorado season of 1947. U.S. Fish and Wildlife Service, Denver, CO.
- Klett, A.T., T.L. Shaffer and D.H. Johnson. 1988. Duck nest success in the prairie pothole region. J. Wildlife Manage. 52(3):431-440.
- Klimstra, J.D. and P. Padding, compilers. 2011. Atlantic Flyway harvest and population survey data book. U.S. Fish and Wildlife Service, Laurel, MD.

- Korschgen, C.E., K.P. Kenow, J.M. Nissen and J.F. Wetzel. 1996. Canvasback mortality from illegal hunting on the Upper Mississippi River. Wildlife Soc. B. 24:132-139.
- Kramer G.W., E. Carrera, and D. Zavaleta. 1995. Waterfowl harvest and hunter activity in Mexico. T. N. Am. Wildl. Nat. Res. 60:243-250.
- Krapu, G.L., P.J. Pietz, D.A. Brandt and R.R. Cox, Jr. 2000. Factors limiting mallard brood survival in prairie pothole landscapes. J. Wildlife Manage. 64(2):553-561.
- ______, D.A. Brandt and R.R. Cox, Jr. 2004. Less waste corn, more land in soybeans and the switch to genetically modified crops: trends with important implications for wildlife management. Wildlife Soc. B. 32(1): 127-136.
- ______, D. A. Brandt, K. L. Jones, and D. H. Johnson. 2011. Geographic distribution of the Midcontinent Population of sandhill cranes, and related management applications. Wildlife Monographs 175. 38pp.
- Krohn, W.B., F.W. Martin and K.P. Burnham. 1974. Band recovery distribution and survival estimates of Maine woodcock. Proc. Fifth American Woodcock Workshop, Athens, GA. 8 pp.
- _____, and E.G. Bizeau. 1988. Changes in Winter Distribution of the Rocky Mountain Canada Goose Population. Wildl. Soc. Bull. 16:272-277.
- Kruse, K.L., compiler. 2009. Central Flyway harvest and population survey data book. U.S. Fish and Wildlife Service, Denver CO. Unpublished report. 86 pp.
- ______, compiler. 2010. Central Flyway harvest and population survey data book. U.S. Fish and Wildlife Service, Denver CO. Unpublished report. 86 pp.
- ______, D.E. Sharp, W.N. Ladd, T.J. Moser and E.A. Bublitz, compilers. 2002. Central Flyway waterfowl hunting and harvest survey information, 1961-2001. U.S. Fish and Wildlife Service, Denver, CO.
- ______, D.E. Sharp, and J.A. Dubovsky. 2009. Status and harvests of sandhill cranes: Mid-Continent, Rocky Mountain and Lower Colorado River Valley Populations. Administrative Report, U.S. Fish and Wildlife Service, Denver, Colorado. 11 pp.
- ______, J.A. Dubovsky, and T.R. Cooper. 2011. Status and harvests of sandhill cranes: Mid-Continent, Rocky Mountain and Lower Colorado River Valley Populations. Administrative Report, U.S. Fish and Wildlife Service, Denver, Colorado. 12 pp.
- Langen, T.A., A. Machniak, E.K. Crowe, C. Mangan, D.F. Marker, N. Liddle and B. Roden. 2007. Methodologies for surveying herpetofauna mortality on rural highways. J. Wildl. Manage. 71(4):1361-1368.
- Larned, W.W. 2004. Steller's eider spring migration surveys, Southwest Alaska, 2004. U.S. Fish and Wildlife Service, Anchorage, AK. Unpublished report.
- Leitch, W.G. 1978. Ducks and men. Ducks Unlimited Canada, Winnipeg. 268 pp.
- Leonard, J.P. 1998. Nesting and foraging ecology of band-tailed pigeons in western Oregon. Ph.D. Dissertation, Oregon State University, Corvallis, OR.
- Lenth, B., M. Brennan, and R.L. Knight. 2006. The effects of dogs on wildlife communities. Unpublished report to Boulder County Open Space and Mountain Parks. 29 pp.
- Lewis, J.C., editor. 1987. Proceedings of the 1985 Crane Workshop. Platte River Whooping Crane Habitat Maintenance TruSt. U.S. Fish and Wildlife Service, Grand Island, NE. 415 pp.
- ______, E. Kuyt, K.E. Schwindt, and T.V. Stehn. 1992. Mortality in fledged cranes of the Aransas-Wood Buffalo population. Pp. 145-148 *in* D.A. Wood, ed. Proceedings of the 1988 North American Crane Workshop. Florida Game and Freshwater Fish Commission, Tallahassee, FL.
- Linduska, J.P. 1964. <u>Waterfowl Tomorrow</u>. U.S. Department of the Interior, Bureau of Sport fisheries and Wildlife, Fish and Wildlife Service, Washington, D.C.
- Link, W.A. and J.R. Sauer. 2002. A hierarchical analysis of population change with application to Cerulean Warblers. Ecology 83:2832-2840.
- _____, ____and D.K. Niven. 2006. A hierarchical model for regional analysis of population change using Christmas Bird Count data, with application to the American black duck. Condor 108(1):13–24.

- Loesch, C., R. Reynolds, and L.T. Hansen. 2011. An Economic Assessment of Re-directing Conservation Efforts in Regard to Recent Predictions about the Impact of Climate Change on Waterfowl in the U.S. Prairie Pothole Region. J. Wildlife Manage. *In Press*.
- Lonner, T.D. 1980. Subsistence as an economic system in Alaska: theoretical and policy implications. Division of Subsistence, Alaska Department of Fish and Game, Technical Paper No. 67. 43 pp.
- MacCracken, M., E. Barron, D. Easterling, B. Felzer, and T. Karl. 2000. Scenarios for climate variability and change: the potential consequences of climate variability and change for the United States. U.S. Global Change Research Program, National Science Foundation, Washington, D.C.
- Madsen, J. 1998. Experimental refuges for migratory waterfowl in Danish wetlands. II. Tests of hunting disturbance effects. J. Appl. Ecol. 35:398-417.
- Madsen, J. and A.D. Fox. 1995. Impacts of hunting disturbance on waterbirds a review. Wildl. Biol. 1:193-207.
- Mallek, E.J., R. Platte and R. Stehn. 2006. Aerial breeding pair surveys of the Arctic Coastal Plain of Alaska 2005. U.S. Fish and Wildlife Service, Fairbanks, AK. Unpublished Report.
- Marks, J.S., T.L. Tibbitts, R.E. Gill, Jr. and B.J. McCaffery. 2002. Bristle-thighed Curlew (*Numenius tahitiensis*). *In A. Poole and F. Gill, eds. The Birds of North America, No. 705. The Birds of North America, Inc., Philadelphia, PA.*
- Marsh, E.G. and G.B. Saunders. 1942. The status of the white-winged dove in Texas. Wilson Bull. 54(2):145-146.
- Martin, E.M. 1979. Hunting and harvest trends for migratory game birds other than waterfowl: 1964-76. U. S. Fish and Wildlife Service Special Scientific Report No. 218.
- _____, E.M. and S.M. Carney. 1977. Population ecology of the mallard: IV. A review of duck hunting regulations, activity, and success, with special reference to the mallard. U.S. Fish and Wildlife Service, Resource Publication 130, Washington, D.C. 137 pp.
- Martin, F.W., S.O. Williams, J.D. Newsom and L.L. Glasgow. 1969. Analysis of records of Louisiana-banded woodcock. Proc. 3rd Annu. Conf. Southeastern Assoc. Game and Fish Comm. 23:85-96.
- ______, R.S Pospahala, and J.D. Nichols. 1979. Assessment and population management of North American migratory birds. Pp 187-239 *in* J. Cairns, G.P. Patil, and W.E. Waters, eds. Environmental and biomonitoring assessment, prediction, and management certain case studies and related quantitative issues. International Co-operative Publishing House, Fairland, Maryland, USA.
- Mayr, E. 1942. Systematics and the Origin of Species. Columbia Univ. Press, New York.
- Mcgowan, K. J. 2001. Fish Crow (*Corvus ossifragus*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved in 2008 from: http://bna.birds.cornell.edu/bna/species/589.
- McKinnon, D.T. and D.C. Duncan. 1999. Effectiveness of dense nesting cover for increasing duck production in Saskatchewan. J. Wildlife Manage. 63(1):382-389.
- McKnight, A., K.M. Sullivan, D.B. Irons, S.W. Stephensen and S. Howlin. 2006. Marine bird and sea otter population abundance of Prince William Sound, Alaska: trends following the T/V Exxon Valdez Oil Spill, 1989-2005; restoration project 050751; final report. U.S. Fish and Wildlife Service, Migratory Bird Management, Anchorage, AK. Unpublished report.
- Mcleod, S. 2008. Minimum loss, and minimum percentage loss, of CRP acres across the Prairie Pothole Region 2007-2012. Compiled from county-level U.S. Department of Agriculture Farm Service Agency Data (http://www.fsa.usda.gov). Ducks Unlimited, Great Plains Regional Office, Bismarck, ND, USA.
- McNair, D.B. 1989. Status and distribution of the fish crow in the Carolinas and Georgia. Oriole 52:28–45.
- _____. 2004. Annual Performance Report, Project W-12-7. Division of Fish and Wildlife, Department of Planning and Natural Resources, Frederiksted, St. Croix.
- Melvin, S.M. and S.A. Temple. 1983. Fall migration and mortality of Interlake, Manitoba Sandhill Cranes in North Dakota. J. Wildl. Manage. 47:805-817.

- and J.P. Gibbs. 1994. Sora. Pp. 209-217 *in* T.C. Tacha and C.E. Braun, eds. Migratory shore and upland game bird management in North America. Int. Assoc. Fish and Wildl. Agencies, Washington, D.C.
- Merovka, L.J. 1944. Report on investigation of band-tailed pigeon populations and depredations in southwestern Colorado conducted from June 5 to 14, 1944. U.S. Fish and Wildlife Service, Denver, CO
- Miller, M.R. and D.C. Duncan. 1999. The northern pintail in America: status and conservation needs of a struggling population. Wildl. Soc. Bull. 27:788–800.
- Milly, P., K. Dunne, and A. Vecchia. 2005. Global pattern of trends in streamflow and water availability in a changing climate. Nature 438(7066):347-350.
- Mississippi Flyway Council. 1996. Mississippi Flyway Giant Canada Goose Management Plan. Mississippi Flyway Council Technical Section, July 1996, c/o U.S. Fish and Wildlife Service, Fort Snelling, MN.
- Moore, M.T., K.D. Richkus, P.I. Padding, E.M. Martin, S.S. Williams and H.L. Spriggs. 2007. Migratory bird hunting activity and harvest during the 2001 and 2002 hunting seasons, final report. U.S. Fish and Wildlife Service, Washington, D.C.
- Morrison, R.I.G., B.J. McCaffery, R.E. Gill, S.K. Skagen, S.L. Jones, G.W. Page, C.L. Gratto-Trevor and B.A. Andres. 2006. Population estimates of North American shorebirds, 2006. Wader Study Group Bull. 111:67-85.
- Moser, T.J., editor. 2001. The status of Ross's geese. Arctic Goose Joint Venture Special Publication. U.S. Fish and Wildlife Service, Washington, D.C., and Canadian Wildlife Service, Ottawa, Ontario.
- ______, and F.D. Caswell. 2004. Long-term indices of Canada goose status and management. Pp. 123-129 *in* T.J. Moser, R.D. Lien, K.C. VerCauteren, K.F. Abraham, D.E. Andersen, J.G. Bruggink, J.M. Coluccy, D.A. Graber, J.O. Leafloor, D.R. Luukkonen and R. E. Trost, eds. Proc. 2003 Int. Canada Goose Symp., Madison, WI.
- _____. 2006. The 2005 North American trumpeter swan survey. U.S. Fish and Wildlife Service, Denver, CO. Unpublished report.
- Mueller, H. 1999. Wilson's Snipe (*Gallinago delicata*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved in 2008 from: http://bna.birds.cornell.edu/bna/species/417.
- Nack, R.R. and D.E. Andersen. 2006. Brood movements of Eastern Prairie Population Canada geese: potential influence of light goose abundance. J. Wildlife Manage. 70:435-442.
- National Audubon Society. 2002. The Christmas Bird Count Historical Results. Retrieved 25 September, 2007 from: http://www.audubon.org/bird/cbc.
- National Mourning Dove Planning Committee (NMDPC). 2003. Mourning dove national strategic harvest management plan. U.S. Fish and Wildlife Service, Washington, D.C. 16 pp.
- National Waterfowl Management Plan for the United States, cooperators: U.S. Fish and Wildlife Service, Pacific Flyway Council, Central Flyway Council, Mississippi Flyway Council, Atlantic Flyway Council, 1982. 32 pp. + appendices.
- Naves, L.C., D. Koster, M.G. See, B. Easley, and L. Olson. 2008. Alaska Migratory Bird Co-Management Council migratory bird subsistence harvest survey: assessment of the survey methods and implementation. Alaska Department of Fish and Game Division of Subsistence, Special Publication No. SP2008-005, Anchorage, AK.
- _____. 2010. Alaska Migratory Bird Subsistence Harvest Estimates, 2008, Alaska Migratory Bird Co-Management Council. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 353, Anchorage, AK.
- Neff, J.A. 1947. Habits, food, and economic status of the band-tailed pigeon. North American Fauna, Number 58, U.S. Department of the Interior, U.S. Fish and Wildlife Service, Washington, D.C. 76 pp.
 ______. 1951. Inventory of band-tailed pigeon populations in Arizona, Colorado, and New Mexico 1951.
 ______. U.S. Fish and Wildlife Service, Wildlife Research Laboratory, Denver, CO.

- . 1952. Inventory of band-tailed pigeon populations in Arizona, Colorado, and New Mexico 1952 U.S. Fish and Wildlife Service, Wildlife Research Laboratory, Denver, CO.
- and J.C. Culbreath. 1947. Status of the band-tailed pigeon in Colorado season of 1946. U.S. Fish and Wildlife Service and Colorado Game and Fish Department, Denver, CO.
- Nichols, J.D., F.A. Johnson and B.K. Williams. 1995. Managing North American waterfowl in the face of uncertainty. Annu. Rev. Ecol. SySt. 26:177-199.
- Noss, R.F., E.T. LaRoe III, and J. M. Scott. 1995. Endangered Ecosystems of the United States: A Preliminary Assessment of Loss and Degradation. U.S. Geological Survey, Biological Services.
- Orth, R.J. and K.A. Moore. 1984. Distribution and abundance of submerged aquatic vegetation in Chesapeake Bay: an historical perspective. Estuaries Coasts 7:531-540.
- Otis, D.L., J.H. Schulz, D.A. Miller, R.E. Mirarchi, and T.S. Baskett. 2008. Mourning Dove (*Zenaida macroura*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Laboratory of Ornithology; Retrieved in 2008 from: http://bna.birds.cornell.edu/bna/species/117.
- Owen, R.B., Jr., J.M. Anderson, J.W. Artmann, E.R. Clark, T.G. Dilworth, L.E. Gregg, F.W. Martin, J.D. Newsom and S.R. Pursglove, Jr. 1977. American woodcock (*Philohela minor = Scolopax minor* of Edwards 1974), Pp. 149-186 *in* G.C. Sanderson, ed. Management of migratory shore and upland game birds in North America. Int. Assoc. Fish and Wildl. Agencies, Washington, D.C. 385 pp.
- Pacific Flyway Council. 1989 and 1995. Pacific Flyway management plan for the greater sandhill crane population wintering along the lower Colorado River Valley. Special report in the files of the Pacific Flyway Representative, Portland, OR.
- _____. 1999. Pacific Flyway management plan for the Aleutian Canada goose. Pacific Flyway Study Committee, Subcommittee on Aleutian Canada Geese, c/o U.S. Fish and Wildlife Service, Portland, OR.
- _____. 2001. Pacific Flyway management plan for the western population of tundra swans. Pacific Flyway Study Committee, Subcommittee on Tundra Swans. Unpublished Report, c/o U.S. Fish and Wildlife Service, Portland, OR.
- . 2006. Draft Pacific Flyway management plan for the emperor goose. Pacific Flyway Study Committee. c/o U.S. Fish and Wildlife Service, Portland, OR.
- _____. 2008. Pacific Flyway management plan for the dusky Canada goose. Pacific Flyway Study Committee, Dusky Canada Goose Subcommittee. c/o U.S. Fish and Wildlife Service, Portland, OR. Unpublished report. 38 pp + appendices.
- and Central Flyway Council. 1982, 1987, 1991, 1997 and 2007. Management Plan of the Pacific and Central Flyways for the Rocky Mountain Population of Greater Sandhill Cranes. Special Report in the files of the Central Flyway Representative, Denver, CO.
- Pacific Flyway Study Committee. 1994. Pacific Flyway management plan for the Pacific coast population of band-tailed pigeons. Pacific Flyway Council, c/o U.S. Fish and Wildlife Service, Portland, OR.
- and Central Flyway Webless Migratory Game Bird Technical Committee. 2001. Pacific and Central Flyways management plan for the Four Corners population of band-tailed pigeons. Pacific Flyway Council, c/o U.S. Fish and Wildlife Service, Portland, OR.
- Padding. P.I., S.M. Barton, L.R. Lange, R.D. Games, R.C. Boyd, P.T. Seng and D.A. Shipes. 2002. The scope and impact of hunter non-compliance with the Harvest Information Program. Pp. 39-46 *in* J.M. Ver Steeg and R.C. Elden, compilers. Harvest Information Program: Evaluation and recommendations. Int. Assoc. Fish and Wildl. Agencies, Migratory Shore and Upland Game Bird Working Group, Washington, D.C.
- _____, Moore, M.T., K.D. Richkus, E.M. Martin, S.S. Williams and H.L. Spriggs. 2006. Migratory bird hunting activity and harvest during the 1999 and 2000 hunting seasons. Final report. U.S. Fish and Wildlife Service, Laurel, MD.
- Pagano, A.M. 2007. Examining detection probabilities in waterfowl pair and brood surveys in northeastern North Dakota. M.S. Thesis, University of Minnesota. 93 pp.

- ______, and T.W. Arnold. 2009. Estimating detection probabilities of waterfowl broods from ground-based surveys. J. Wildl. Mange. 73(5):686-294.
- Pamplin, W.L. 1986. Cooperative efforts to halt population declines of geese nesting on Alaska's Yukon-Kuskokwim Delta. Trans. N. Amer. Wildl. Nat. Resour. Conf. 51:487-506.
- Parsons, D.J. 2002. Understanding and managing impacts of recreation use in mountain environments. Arct. Antarct. Alp. Res., 34(4):363-364.
- Peterjohn, B.G., J.R. Sauer and W.A. Link. 1994. The 1992 and 1993 summary of the North American Breeding Bird Survey. Bird Popul. 2:46-61.
- Petersen, J.L., R. Bischof, G.L. Krapu and A.L. Szalanski. 2003. Genetic variation in the mid-continental population of sandhill cranes, *Grus canadensis*. Biochem. Genet. 41:1-12.
- Petterson, J.S., S. McNabb, W. Nebesky, O. Young, K. Waring, L. Robbins and A. Fienup-Riordan. 1988. Village Economics in Rural Alaska. A final report by Impact Assessment, Inc. for the U.S. Department of the Interior, Minerals Management Service, Alaska OCS Region, Anchorage, AK. NTIS No. PB89-227109. Social and Economic Studies Program Technical Report No. 132. MMS Report 88-0079. Contract No. 14-12-0001-30298. 326 pp.
- Phillips, M.L., W.R. Clark, M.A. Sovada, D.J. Horn, R.R. Koford, and R.J. Greenwood. 2003. Predator selection of prairie landscape features and its relation to duck nest success. J. Wildlife Manage. 67:104-114.
- Pietz, P.J., G.L. Krapu, D.A. Brandt and R.R. Cox, Jr. 2003. Factors affecting gadwall brood and duckling survival in prairie pothole landscapes. J. Wildlife Manage. 67(3):564-575.
- Punt, A.E., and A.D.M. Smith. 2001. The gospel of maximum sustainable yield in fisheries management: birth, crucifixion and reincarnation. Pp. 41-66 *in* J.D. Reynolds, G.M. Mace, K.H. Redford, and J.G. Robinson, eds. Conservation of exploited species. Cambridge University Press, Cambridge, UK.
- Rabe, M.J. 2007. White-winged dove status in Arizona, 2007. Arizona Game and Fish Department, Phoenix, AZ. Unpublished report.
- Raftovich, R.V. and P.I. Padding, compilers. 2007. Atlantic Flyway: Waterfowl harvest and population survey data July 2007. U.S. Fish and Wildlife Service, Laurel, MD. 95 pp. Unpublished report.
- ______, R.V., K.A. Wilkins, K.D. Richkus, S.S. Williams, and H.L. Spriggs. 2009. Migratory bird hunting activity and harvest during the 2007 and 2008 hunting seasons. U.S. Fish and Wildlife Service, Laurel, Maryland. 68 pp.
- _____,R.V., K.A. Wilkins, K.D. Richkus, S.S. Williams, and H.L. Spriggs. 2010. Migratory bird hunting activity and harvest during the 2008 and 2009 hunting seasons. U.S. Fish and Wildlife Service, Laurel, Maryland, 63 pp.
- _____,R.V., K.A. Wilkins, S.S. Williams, H.L. Spriggs and K.D. Richkus, 2011. Migratory bird hunting activity and harvest during the 2009 and 2010 hunting seasons. U.S. Fish and Wildlife Service, Laurel, Maryland, 63 pp.
- Raffaele, H., J. Wiley, O. Garrido, A. Keith and J. Raffaele. 1998. A Guide to the Birds of the West Indies. Princeton University Press, Princeton, NJ.
- Read, J.L. 1999. A strategy for minimizing waterfowl deaths on toxic waterbodies. J. Appl. Ecol. 36(3):345-350.
- Reid, F.A., B. Meanley, and L.H. Fredrickson. 1994. King rail. Pp. 181-191 *in* T.C. Tacha and C.E. Braun, eds. Migratory shore and upland game bird management in North America. Int. Assoc. Fish and Wildl. Agencies, Washington, D.C.
- Reynolds, R.E., T.L. Shaffer, R.W. Renner, W.E. Newton and B.D.J. Batt. 2001. Impact of the conservation reserve program on duck recruitment in the U.S. prairie pothole region. J Wildlife Manage. 65(4):765-780.
- Rhymer, J.M., M.G. Fain, J.E. Austin, D.H. Johnson and C. Krajewski. 2001. Mitochondrial phylogeography, subspecific taxonomy, and conservation genetics of sandhill cranes (*Grus canadensis*; Aves: Gruidae). Conserv. Genet. 2(3):203-218.

- Richkus K.D. 2002. Northern pintail nest site selection, nest success, renesting ecology, and survival in the intensively farmed prairies of southern Saskatchewan: an evaluation of the ecological trap hypothesis. Dissertation. Louisiana State University, Baton Rouge, LA.
- _____, M.T. Moore, P.I. Padding, E.M. Martin, S.S. Williams and H.L. Spriggs. 2005. Migratory Bird Harvest Information, 2004. Preliminary estimates. U.S. Department of the Interior, Washington, D.C.
- _____, ____, S.S. Williams, H.L. Spriggs and E.M. Martin. 2007. Migratory bird hunting activity and harvest during the 2005 and 2006 hunting seasons: Preliminary estimates. U.S. Department of the Interior, U.S. Fish and Wildlife Service, Washington, D.C.
- _____, K.A. Wilkins, R.V. Raftovich, S.S. Williams, and H.L. Spriggs. 2008. Migratory bird hunting activity and harvest during the 2006 and 2007 hunting seasons: preliminary estimates. U.S. Fish and Wildlife Service. Laurel, MD.
- Ringelman, J.K. and L.D. Flake. 1980. Diurnal visibility and activity of blue-winged teal and mallard broods. J. Wildlife Manage. 44:822-829.
- . 1997. Effects of regulations and duck abundance on duck hunter participation and satisfaction. T. N. Am. Wildl. Nat. Res. 62:361-376.
- Riordan, B.A. 2005. Using remote sensing to examine changes of closed-basin surface water area in interior Alaska from 1950-2002. M.S. Thesis, University of Alaska, Fairbanks, AK.
- Rivera-Milán, F.F. 1993. Standardization of roadside counts of columbids in Puerto Rico and on Vieques Island. U.S. Department of the Interior, National Biological Survey, Resource Publication 197, Washington, D.C.
- _____. 1995a. Spatial and temporal variation in the detectability and density of columbids in Puerto Rico and on Vieques Island. Neotrop. Ornithol. 6:1-17.
- _____. 1995b. Detectability and population density of scaly-naped pigeons before and after Hurricane Hugo in Puerto Rico and Vieques Island. Wilson Bull. 107:727-733.
- . 1999. Population dynamics of Zenaida doves in Cidra, Puerto Rico. J. Wildlife Manage. 63:232-244.
- and F.C. Schaffner. 2002. Demography of Zenaida doves on Cayo del Agua, Culebra, Puerto Rico. Condor 104:587-597.
- _____, C. Ruiz, J. A. Cruz, M. Vazquez and A. J, Martínez. 2003. Population monitoring of plain pigeons in Puerto Rico. Wilson Bull. 115:45-51.
- Rotella, J.J. and J.T. Ratti. 1992. Mallard brood survival and wetland habitat conditions in southwestern Manitoba. J. Wildlife Manage. 56(3):499-507.
- Runge, M.C. and G.S. Boomer. 2005. Population dynamics and harvest management of the continental northern pintail populations. Report, June 6, 2005. U.S. Geological Survey, Patuxent Wildlife Research Center, Laurel, MD.
- ______, F.A. Johnson, M.G. Anderson, M.D. Koneff, E.T. Reed and S.E. Mott. 2006. The need for coherence between waterfowl harvest and habitat management. Wildl. Soc. B. 34(4):1231-1237.
- Rusch, D.H., R.A. Malecki and R.E. TroSt. 1995. Canada geese in North America. Pp. 26-28 *in* E.T. LaRoe, G.S. Farris, C.E. Puckett, P.D. Doran and M.J. Mac, eds. Our living resources. U.S. Department of the Interior, National Biological Service, Washington, D.C. 530 pp.
- Sadler, K.C. 1993. Mourning dove harveSt. Pp. 449–559 *in* T.S. Baskett, M.W. Sayre, R.E. Tomlinson and R.E. Mirarchi, eds. Ecology and management of the mourning dove. Stackpole Books, Harrisburg, PA.
- Samuel, M.D., J.Y. Takekawa, G. Samelius and D.R. Goldberg. 1999. Avian cholera mortality in lesser snow geese nesting on Banks Island, Northwest territories. Wildl. Soc. Bull. 27(3):780-787.
- Sanders, T. A. 2011. Band-tailed pigeon population status, 2011. U.S. Department of the Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Washington, D.C.
- Sanderson, G.C. (editor). 1977. Management of migratory shore and upland game birds in North America. Int. Assoc. Fish and Wildl. Agencies, Washington, D.C. 358 pp.

- Sargeant, A.B., M.A. Sovada and T.L. Shaffer 1995. Seasonal predator removal relative to hatch rate of duck nests in waterfowl production areas. Wildl. Soc. Bull. 23(3):507-513.
- Sauer, J.R. and S. Droege. 1988. Wood duck population trends from the North American Breeding Bird Survey. Pp. 159-165 *in* L.H. Fredrickson, G.V. Burger, S.P. Havera, D.A. Graber, R.E. Kirby and T.S. Taylor, eds. Proc. 1988 North Am. Wood Duck Symp., St. Louis, MO.
- ______, W.A. Link, W.L. Kendall, J.R. Kelley and D.K. Niven. 2008. A hierarchical model for estimating change in American woodcock populations. J. Wildlife Manage. 72 (1):204-214.
- ______, J. E. Hines, J. E. Fallon, K. L. Pardieck, D. J. Ziolkowski, Jr., and W. A. Link. 2011. *The North American Breeding Bird Survey, Results and Analysis 1966 2009. Version 3.23.2011* USGS Patuxent Wildlife Research Center, Laurel, MD
- Saunders, G.B. 1940. Eastern white-winged dove (*Melopelia asiatica asiatica*) in southeastern Texas. U.S. Biological Survey, Washington, D.C. Unpublished report. 132 pp.
- Sayre, M.W. and N.J. Silvy. 1993. Nesting and production. Pp. 81–104 *in* T.S. Baskett, M.W. Sayre, R.E. Tomlinson and R.E. Mirarchi, eds. Ecology and management of the mourning dove. Stackpole Books, Harrisburg, PA.
- Scheaffer, S.E, M.C. Runge and R.A. Malecki. 1999. Models for adaptive management of northern pintails. Report to the Pacific Flyway Waterfowl Council Study Committee. New York Cooperative Fish and Wildlife Research Unit, Ithaca, NY, USA.
- Schroeder, M.A. and C.E. Braun. 1993. Movement and philopatry of band-tailed pigeons captured in Colorado. J. Wildlife Manage. 57(1):103–112.
- Schulz, J.H., P.I. Padding and J.J. Millspaugh. 2006. Will mourning dove crippling rates increase with nontoxic-shot regulations? Wildlife Soc. B. 34:861-865.
- Schwertner, T.W., H.A. Mathewson, J.A. Roberson, M. Small and G.L. Waggerman. 2002. White-winged Dove (*Zenaida asiatica*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved in 2008 from: http://bna.birds.cornell.edu/bna/species/710.
- M. Frisbie and J. Roberson. 2007. White-winged and white-tipped dove status in Texas, 2007. Texas Parks and Wildlife Department, Austin, TX. Unpublished report.
- Sea Duck Joint Venture Management Board. 2001. Sea Duck Joint Venture Strategic Plan: 2001 2006. SDJV Continental Technical Team. [c/o USFWS, Anchorage, Alaska; CWS, Sackville, New Brunswick]. Unpublished report. 14pp. + appendices.
- Seamans, M.E., K. Parker, and T.A. Sanders. 2011. Mourning Dove Population Status, 2011. U.S. Department of the Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Washington, D.C.
- Seavy, N.E., K.E. Dybala and M.A. Snyder. 2008. Climate models and ornithology. Auk 125:1-10.
- Sharp, D.E., and J.A. Dubovsky. 2001. Status and harvests of the mid-continent and Rocky Mountain populations of sandhill cranes, 2001. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Denver, CO.
- Sheriff, S.L., J.H. Schulz, B.D. Bales, M.T. Moore, P.I. Padding, and D.A. Shipes. 2002. The current reliability of Harvest Information Program surveys. Pp. 51-68 *in* J.M. Ver Steeg and R.C. Elden, compilers. Harvest Information Program: Evaluation and recommendations. Int. Assoc. Fish and Wildl. Agencies, Migratory Shore and Upland Game Bird Working Group, Ad Hoc Committee on HIP, Washington, D.C.
- Sibley, D.A. 2000. National Audubon Society. The Sibley Guide to Birds. Chanticleer Press, New York.
- Small, M.F., R.A. Hilsenbeck and J.F. Scuddy. 1989. Resource utilization and nesting ecology of the white-winged dove (*Zenaida asiatica*) in central Trans-Pecos, Texas. Texas J. Agric. and Nat. Resour. 3:37-38.
- Smith, G.W. 1995. A critical review of the aerial and ground surveys of breeding waterfowl in North America. USDI-NBS Biological Science Report 5. National Biological Service, Washington, D.C. 252 pp.

- and J.A. Dubovsky. 1998. The point system and duck-harvest management. Wildlife Soc. B. 26(2):333-341.
- Smith, M. 2006. 2001-2005 Swan Lead Mortality Project Report. Washington Cooperative Fish and Wildlife Research Unit. University of Washington, Seattle. Unpublished report.
- Soine, P.J. 1982. Roost habitat selection by sandhill cranes in central North Dakota. Pp. 88-94 *in* J.C. Lewis, ed. Proc. 1981 Int. Crane Workshop. Nat. Audubon Soc. Tavernier, FL.
- Stalmaster, M.V., and J.R. Newman. 1978. Behavioral responses of wintering bald eagles to human activity. J. Wildl. Manage. 42:506-513.
- Stephens, S.E., J.J. Rotella, M.S. Lindberg, M.L. Taper and J.K Ringelman. 2005. Duck nest survival in the Missouri Coteau of North Dakota: the effects of landscape characteristics at multiple spatial scales. Ecol. Appl. 15:2137-2149.
- _____, J. Walker, D. Blunck, A. Jayaraman and D. Naugle. 2006. Grassland conversion in the Missouri Coteau of North and South Dakota 1984–2003. Preliminary Report.
- Stiles, F., A. Skutch. 1989. A Guide to the Birds of Costa Rica. Ithaca, New York: Comstock Publishing Associates.
- Stone, W.B. and H. Knoch. 1982. American brant killed on golf courses by diazinon. New York Fish Game J. 29:95-96.
- Stout J. and G.W. Cornwell. 1976. Nonhunting mortality of fledged North American waterfowl. J. Wildl. Manage. 40(4):681-693.
- Straw, J.A, Jr., D.G. Krementz, M.W. Olinde and G.K. Sepik. 1994. American woodcock. Pp.149-186 *in* Migratory shore and upland game bird Management in North America, T.C. Tacha and C.E. Braun, eds. International Association of Fish and Wildlife Agencies. Washington, D.C. 223 pp.
- Sturm, M., J. Schimel, G. Michaelson, J.M. Welker, S.F. Oberbauer, G.E. Liston, J. Fahnestock, and V.E. Romanovsky. 2005. Winter biological processes could help convert Arctic tundra to shrubland. Bioscience 55:17-26.
- Subcommittee on Rocky Mountain Greater Sandhill Cranes. 2007. Management plan of the Pacific and Central Flyways for the Rocky Mountain population of greater sandhill cranes. [Joint] Subcommittees, Rocky Mountain Population Greater Sandhill Cranes, Pacific Flyway Study Committee, Central Flyway Webless Migratory Game Bird Tech. Committee [c/o USFWS, MBMO], Portland, OR. 97 pp.
- Szymczak, M. and H. Funk. 1993. Band-tailed pigeon report Colorado 1993. Colorado Division of Wildlife, Wildlife Research Report. Federal Aid Project W-166R-3, Progress Report, October 1994.
- Tacha, T.C. and C.E. Braun. 1994. Migratory shore and upland game bird management in North America. Int. Assoc. Fish and Wildl. Agencies, Washington, D.C.
- ______, S.A. Nesbitt and P.A. Vohs. 1994. Sandhill Crane. Pp. 77-94 *in* T.C. Tacha and C.E. Braun, eds. Migratory Shore and Upland Game Bird Management in North America. Int. Assoc. Fish and Wildl. Agencies, Washington, D.C.
- Tautin, J., S.M. Carney, and J.B. Bortner. 1989. A national migratory game bird harvest survey: a continuing need. T. N. Am. Wildl. Nat. Res. 54: 545-551.
- Tessler, D.F., J.A. Johnson, B.A. Andres, S. Thomas and R.B. Lanctot. 2007. Black Oystercatcher (*Haematopus bachmani*) Conservation Action Plan. International Black Oystercatcher Working Group, Alaska Department of Fish and Game, Anchorage, AK, U.S. Fish and Wildlife Service, Anchorage, AK, and Manomet Center for Conservation Sciences, Manomet, MA. 115 pp. Retrieved in 2008 from: http://www.whsrn.org/shorebirds/conservation_plans.html.
- Tiner, R.W., Jr. 1984. Wetlands of the United States: current status and recent trends. U.S. Fish and Wildlife Service, National Wetlands Inventory. Washington, D.C. 59 pp.
- Tomlinson, R.E., D.D. Dolton, H.M. Reeves, J.D. Nichols and L.A. McKibben. 1988. Migration, harvest, and population characteristics of mourning doves banded in the Western Management Unit, 1964–77. Fish and Wildlife Technical Report 13. U.S. Fish and Wildlife Service, Washington, D.C.

- ______, _____, R.R. George and R.E. Mirarchi. 1994. Mourning dove. Pp. 5–26 *in* T.C. Tacha and C.E. Braun, eds. Migratory shore and upland game bird management in North America. Int. Assoc. Fish and Wildl. Agencies, Washington, D.C.
- Trost, R.E., K.E. Gamble and D.J. Nieman. 1990. Goose surveys in North America: current procedures and suggested improvements. Trans. North Am. Wildl. Nat. Resour. Conf. 55:338-349.
- ______, D. Lusczc, T.C. Rothe, J.R. Serie, D.E. Sharp and K.E. Gamble. 1999. Management and hunt plans for Tundra Swans. Pp. 103-108 *in* J.R. Balcomb, M.H. Linck and A.L. Price, eds. Proceedings and Papers of the Sixteenth Trumpeter Swan Society Conference, Trumpeter Swans- Restoration in the Heartland. Trumpeter Swan Society, Maple Plain, MN.
- ______, B.A. Millsap, and R.J. Blohm. 2003. Final environmental assessment: Proposal to establish general swan hunting seasons in parts of the Pacific Flyway. Division of Migratory Bird Management, Arlington, Virginia. 55 pp.
- U.S. Climate Change Science Program. 2009. Coastal sensitivity to sea level rise: a focus on the mid-Atlantic region. Synthesis and Assessment Product 4.1. Washington, DC: U.S. Environmental Protection Agency.
- U.S. Department of the Interior. 1975. Final Environmental Statement: Issuance of annual regulations permitting the sport hunting of migratory birds. U.S. Fish and Wildlife Service, Washington, D.C. 710 pp.
- . 1976. Final Environmental Assessment. Proposed use of steel shot for hunting waterfowl in the United States. U.S. Fish Wildlife Service, Washington, D.C. 15 pp.
- _____. 1980. Subsistence hunting of migratory birds in Alaska and Canada: Final Environmental Impact Assessment for Protocol Amending the Convention of August 16, 1916, for the Protection of Migratory Birds in Canada and the United States of America, January 30, 1979. U.S. Fish and Wildlife Service, Washington, D.C.
- . 1985. Environmental Assessment: Proposed guidelines for migratory bird hunting regulations on Federal Indian reservations and ceded lands. U.S. Fish and Wildlife Service, Washington, D.C. 14 pp.
 - . 1986. Final Supplemental Environmental Impact Statement: Use of lead shot for hunting migratory birds in the United States. U.S. Fish and Wildlife Service, Washington, D.C. 549 pp.
 - . 1988. Final Supplemental Environmental Impact Statement: Issuance of annual regulations permitting the sport hunting of migratory birds. U.S. Fish and Wildlife Service, Washington, D.C. 340 pp.
- . 2004. Endangered Species Act of 1973 as Amended through the 108th Congress. U.S. Fish and Wildlife Service. Washington, D.C. 41 pp.
- 2005. Final Environmental Impact Statement: Resident Canada goose management. U.S. Fish and Wildlife Service, Washington, D.C. 125 pp. + appendices.
- . 2007a. Final Environmental Impact Statement Light Goose Management. U.S. Fish and Wildlife Service, Washington, D.C. 243 pp.
- . 2007b. Proposed hunting regulations for the Lower Colorado River Valley Population of greater sandhill cranes in the Pacific Flyway. U.S. Fish and Wildlife Service, Portland, OR. 13 pp.
- . 2008. Economic analysis of the migratory bird hunting regulations for the 2008-2009 season. Business Management and Operations Division of Economics, U.S. Fish and Wildlife Service, Washington, D.C. 33 pp.
- 2011. Environmental Assessment. Zones and Split Seasons for Duck Hunting. U.S. Fish and Wildlife Service, Washington, D.C. 47 pp.
- and Environment Canada. 1986. North American Waterfowl Management Plan. U.S. Fish and Wildlife Service, Washington, D.C. 19 pp.
- _____, Environment Canada and Secretario de Desarrollo Social Mexico. 1994. 1994 update of the North American Waterfowl Management Plan: Expanding the commitment. U.S. Fish and Wildlife Service, Washington, D.C.

- _____, Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. 2007. 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.
- U.S. Fish and Wildlife Service. 2000. Hunting and Migratory Birds. How hunters benefit many migratory bird species. U.S. Fish and Wildlife Service, Washington, D.C.
- _____. 2003a. Subsistence egg harvest summary. U.S. Fish and Wildlife Service, Migratory Bird Management, Anchorage, AK, USA. Unpublished report.
- . 2003b. Total subsistence bird harvest data. U.S. Fish and Wildlife Service, Anchorage, AK. Unpublished report.
- . 2003c. Alaska subsistence migratory bird harvest surveys. Retrieved in 2007 from: http://alaska.fws.gov/ambcc/ambcc/Harvest/subharvweb.pdf.
 - _____. 2006. Waterfowl population status, 2006. U.S. Department of the Interior, U.S. Fish and Wildlife Service, Washington, D.C.
 - _____. 2007a. Northern Pintail Harvest Strategy 2007. Division of Migratory Bird Management, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 18 pp. Retrieved in 2008 from: http://www.fws.gov/migratorybirds/reports/reports.html.
 - _____. 2007b. Waterfowl population status, 2007. U.S. Department of the Interior, U.S. Fish and Wildlife Service, Washington, D.C. Retrieved in 2008 from: http://www.fws.gov/migratorybirds/reports/reports.html.
 - 2007c. Productivity surveys of geese, swans, and brant wintering in North America 2006. U.S. Department of the Interior. Arlington, VA. Unpublished report.
- _____. 2007d. 50 CFR, Part 20. Migratory bird hunting; Early season and bag possession limits for certain migratory game birds in the contiguous United States, Alaska, Hawaii, Puerto Rico, and the Virgin Islands. Federal Register 72(168):50164-50199.
- _____. 2007e. Alaska seabird colony catalog. U.S. Fish and Wildlife Service, Anchorage, AK. Unpublished database.
- 2007f. Strategic Plan. The partners for fish and wildlife program. Stewardship of fish and wildlife through voluntary conservation. U.S. Fish and Wildlife Service, Arlington, VA. 19 pp.
- 2008. Canvasback Harvest Strategy 2008. Division of Migratory Bird Management, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 6 pp.
- 2009. Waterfowl population status, 2009. U.S. Department of the Interior, Washington D.C. 79 pp.
- _____. 2010a. 50 CFR, Part 20. Migratory bird hunting; Early season and bag possession limits for certain migratory game birds in the contiguous United States, Alaska, Hawaii, Puerto Rico, and the Virgin Islands. Federal Register 75(168):53226-53260.
- . 2010b. U.S. Fish and Wildlife Service Partners for Fish and Wildlife Program. Regional Showcase Accomplishments: Fiscal Year 2010. Retrieved from www.fws.gov/partners.
- 2010c. Waterfowl population status, 2009. U.S. Department of the Interior, Washington D.C. 79 pp.
- 2011. Waterfowl population status, 2011. U.S. Department of the Interior, Washington D.C. 80 pp.
- U.S. Global Change Research Program. 2000. National assessment synthesis team. Climate change impacts on the United States: the potential consequences of climate variability and change. Washington, DC: USGCRP.
- U.S. Shorebird Conservation Plan. 2004. High Priority Shorebirds 2004. U.S. Fish and Wildlife Service, 4401 N. Fairfax Dr., MBSP 4107, Arlington, VA. Unpublished Report. 5 pp.
- U.S. Sportsman's Alliance. 2007. Funding for Top Anti Groups. Animal Rights Funding. Retrieved in 2008 from: http://216.235.203.23//Document.Doc?id=11.
- Vaa, S. 2007. South Dakota Tundra Swan Season 2006. South Dakota Game, Fish, and Parks Department. Brookings, SD. Unpublished report.

- Verbeek, N.A. and R.W. Butler. 1999. Northwestern Crow (*Corvus caurinus*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved in 2008 from: http://bna.birds.cornell.edu/bna/species/407.
- and C. Caffrey. 2002. American Crow (*Corvus brachyrhynchos*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved in 2008 from: http://bna.birds.cornell.edu/bna/species/647.
- Ver Steeg, J.M. and R.C. Elden, compilers. 2002. Harvest information program: evaluation and recommendations. International Association of Fish and Wildlife Agencies, Migratory Shore and Upland Game Bird Working Group, Ad-hoc Committee on HIP, Washington, D.C. 100 pp.
- Waggerman, G.L., G.P. Homerstad, R.R. George and W.A. Shifflett. 1994. White-tipped dove. Pp. 53–59 *in* T.C. Tacha and C.E. Braun, eds. Migratory shore and upland game bird management in North America. Int. Assoc. Fish and Wildl. Agencies. Washington, D.C.
- Walkinshaw, L.H. 1965. A new sandhill crane from Central Canada. Can. Field-Nat. 79:181-184.
- Walters, C.J. 1975. Optimal harvest strategies for salmon in relation to environmental variability and uncertain production parameters. J. Fish. Res. Bd. Can. 32:1777-1784.
- Ward, D.H., A. Reed, J.S. Sedinger, J.M. Black, D.V. Derksen and P.M. Castelli. 2005. North American Brant: effects of changes in habitat and climate on population dynamics. Global Change Biol. 11(6):869–880.
- Wells J.V. and M.E. Richmond. 1995. Populations, metapopulations, and species populations: what are they and who should care? Wildl. Soc. Bull. 23(3):458-462.
- Wentworth, C. 2004. Subsistence migratory bird harvest surveys: Yukon-Kuskokwim Delta, 1993–2002; Bristol Bay 1995–2001. U.S. Fish and Wildlife Service, Migratory Bird Management, Anchorage, AK. Unpublished report.
- and D. Wong. 2001. Subsistence waterfowl harvest survey Yukon-Kuskokwim Delta, 1995-1999. U.S. Fish and Wildlife Service, Migratory Bird Management, Anchorage, AK. 125 pp.
- West, L.M. 1993. Ecology of breeding white-winged doves in the San Antonio metropolitan area. M.S. Thesis, Texas Tech University, Lubbock, USA.
- _____, L.M. Smith, R.S. Lutz and R.R. George. 1993. Ecology of urban white-winged doves. T. N. Am. Wildl. Nat. Res. 58:70-77.
- West, R.L. and G.K. Hess. 2002. Purple Gallinule (*Porphyrio martinica*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved in 2008 from: http://bna.birds.cornell.edu/bna/species/626.
- Wilk, R.J., 1993. Observations on sympatric tundra, *Cygnus columbianus*, and trumpeter swans, *C. buccinator*, in North-central Alaska, 1989–1991. Can. Field-Nat. 107(1):64–68.
- Wilkins, K.A., R.A. Malecki, P.J. Sullivan, J.C. Fuller, J.P. Dunn, L.J. Hindman, G.R. Costanzo, and D. Luszcz. 2010. Migration routes and Bird Conservation Regions used by Eastern Population Tundra Swans *Cygnus columbianus columbianus* in North America. Wildfowl 60: 20-37.
- Williams, B.K., and F.A. Johnson. 1995. Adaptive management and the regulation of waterfowl harvests. Wildl. Soc. Bull. 23:430-43.
- Williams, C.K, M.D. Samuel, V.V. Baranyuk, E.G. Cooch, and D. Kraege. 2008. Winter fidelity and apparent survival of lesser snow goose populations in the Pacific Flyway. J. Wildlife Manage. 72:159-167.
- Yaich, S. and A. Wentz. 2007. Conserving Waterfowl and Wetlands Amid Climate Change. D.M. Browne and R. Dell, eds. Memphis, TN: Ducks Unlimited, Inc.
- Zinkl, J. G., J. Rathert, and R. R. Hudson. 1978. Diazinon poisoning in wild Canada geese. J. Wildlife Manage. 42(2):406-408.
- Zimmerman, G.S., W.L. Kendall, T.J. Moser, G.C. White, P.F. Doherty, Jr. 2009. Temporal patterns of apparent leg band retention in North American Geese. Journal of Wildlife Management: 73:82-88.



SECTION B. APPENDICES

APPENDIX 1

NATIONAL ENVIRONMENTAL POLICY ACT DOCUMENTS RELATING TO MIGRATORY BIRDS

Final Environmental Statement on Issuance of Annual Regulations Permitting the Sport Hunting of Migratory Birds. 1975. The proposal recommends that annual regulations continue to be issued permitting and regulating the hunting of migratory birds in the Anatidae (ducks, geese and swans), Gruidae (cranes), Rallidae (rails, gallinules, and coot), Scolopacidae (woodcock and snipe) and Columbidae (doves and pigeons) families throughout the United States. The proposal protects migratory birds from indiscriminate hunting and permits continuation of nationwide recreational opportunities associated with hunting. Adverse impacts include annual reductions in populations, occasional losses of endangered and other protected species, some trampling and cutting of vegetation, littering, the consumption of 175 million gallons of fuel annually and moral or emotional disturbance for those who are opposed to the killing of wild animals. Alternatives considered include: (A) no action, (B) regulations set by the States, (C) establish international migratory game bird regulations, and (D) issue regulations for periods longer than one year.

Environmental Assessment on Extension of Length of Duck Hunting Season in Western Louisiana. 1975. The proposal to zone Louisiana and allow a five-day extension of the (Mississippi Flyway) season length in the western part of the State evolved from a question as to whether Louisiana waterfowl would be managed more properly as part of the Central Flyway rather than the Mississippi Flyway population. During a four-year period, waterfowl harvest and population in Louisiana will be intensively monitored and wintering populations of major species banded to determine recovery rates, survival rates, and distribution of the harvest between the two flyways. An increased harvest of 73,500 ducks (principally dabbling ducks) other than mallards is not expected to be detrimental to the resource.

Environmental Assessment on Proposed Open Season on Atlantic Brant. 1975. Proposal recommends an open season on Atlantic brant in the Atlantic Flyway in 1975, not to exceed 30 days, daily bag limit four, and possession limit eight. A 48-hour emergency enclosure provision is to be invoked in the event productivity or winter food supply are not sufficient to permit a harveSt. The Proposed action will remove individual birds from the population. Some vegetation destruction, vandalism, and disturbance of the birds and decreased accessibility to the non-hunting public is expected. Hunting opportunity will be increased.

Environmental Assessment on Proposed Open Season on Greater Snow Geese. 1975. Proposal recommends an open season on greater snow geese in the Atlantic Flyway in 1975, not to exceed 30 days, daily bag limit two, and possession limit four. The Proposed action will remove individual birds from the population. Some vegetation destruction, vandalism, disturbance of the birds and decreased accessibility to the non-hunting public is expected. Hunting opportunity will be increased.

Final Environmental Statement on Proposed Use of Steel Shot for Hunting Waterfowl in the United States. 1976. Proposal recommends that in hunting ducks, geese, swans and coots, shot shells loaded with steel or other approved pellets be required in the U.S. beginning in the years 1976 through 1978 in different Flyways, in the areas described and/or States designated. Lead poisoning due to ingestion of lead shotgun pellets by aquatic birds would be alleviated. Adverse effects relate to increased costs to waterfowl hunters

Environmental Assessment on Proposed Hunting Regulations on Black Ducks. 1976. The proposal recommends the continued taking of black ducks at optimal levels of recreational hunting consistent with the maintenance of the resource base. Stabilized regulations are recommended for four years along with a reward band study to establish a data base on survival, and harvest rates.

Environmental Assessment on Proposed Hunting Regulations on Canvasback and Redhead Ducks. 1976. Proposal is to permit a daily bag limit of at least one canvasback (*Aythya valisineria*) and one redhead (*Aythya americana*) throughout each Flyway, subject to possible retention of certain areas closed to the hunting of these species and to population status equal to or greater than that of 1975.

Environmental Assessment on Proposal for Continuation of September Hunting of Mourning Doves. 1977. Proposal is to continue regulations permitting the initiation of mourning dove hunting on September 1, as permitted under provisions of the Migratory Bird treaty Act of 1918. In most States the dove season has opened in September since 1918.

Environmental Assessment on Proposed Shooting Hours Regulations. 1977. The Fish and Wildlife Service, U.S. Department of the Interior, proposes to continue regulations permitting the hunting of migratory game birds during the hours applied in recent years, i.e., from one-half hour before sunrise until sunset for most species of migratory game birds. Special situations require some exceptions to the general shooting hours framework, and it is proposed that these would continue. As provided generally under the Migratory Bird Treaty Act, states would continue to have the option of making more restrictive exceptions within the framework.

Environmental Assessment on Proposal to Establish Harvest Regulations by Zones for the Sport Hunting of Ducks. 1978. Proposed action allows use of experimental duck harvest zones to determine their effects on duck harvest and hunter activity. A Memorandum of Agreement specifying the terms of a zoning study must be concluded between the State(s) and the Service before a zoning experiment will be conducted. Zoning will be for the primary purpose of providing equitable distribution of hunting opportunity within a State or region and not for the purpose of increasing total annual waterfowl harvest in the zoned areas.

Environmental Assessment on Proposed Hunting Regulations on Wood Ducks. 1978. The proposal provides for an early duck season in 11 southeastern States with no restriction on the wood duck daily bag limit. In point system States the wood duck will be a mid-point bird. The proposed action will allow an increase in the harvest of wood ducks native to the southeastern States. Available banding data indicate that these populations can sustain some additional harvest without adverse effects.

Environmental Assessment on Proposal to Extend the Waterfowl Hunting Season Framework in Mississippi. 1979. The Mississippi Department of Wildlife Conservation proposes a change in the closing date of the waterfowl framework from January 20 to January 31 to improve the distribution of harvest opportunity among waterfowl hunters in Mississippi. Harvest trends are more closely correlated with the number of hunting season days after December 15 than with total season length. However, the increase in suitable habitat caused by late-winter flooding will permit wider dispersal of waterfowl, which could reduce hunter success.

Environmental Assessment on Proposal to Increase Harvest Opportunity on Blue-Winged Teal in Iowa. 1979. The Iowa Conservation Commission proposes a change in the opening date of the waterfowl hunting from October 1 to September 20 to ensure consistent harvest opportunity on blue-winged teal. The blue-wing is a lightly-harvested, early-migrating species whose emigration from Iowa in many years is either mostly or entirely completed prior to October 1. The proposal will allow an increase in the average annual harvest of blue-winged teal in Iowa. This species is lightly harvested and the increase should have insignificant impact on its population status or on other waterfowl species.

Environmental Assessment on Stabilized Season Lengths and Basic Bag Limits for Hunting Ducks. 1980. Proposal is to stabilize season length and bag limit regulations for five years on an experimental basis. Stabilized hunting regulations will provide an improved basis for evaluating the effect of hunting regulations on duck harvests and populations, and will enable the Service to determine more precisely the compensatory or non-compensatory nature of hunting mortality compared to non-hunting mortality. The Service has considered the alternatives of continuing to change these regulations annually or setting regulations on a Flyway basis, neither of which will illuminate the effect of hunting mortality on duck populations. The status of all migratory game bird populations and endangered or threatened species involved will continue to be monitored and reviewed on an annual basis.

Environmental Assessment on Subsistence Hunting of Migratory Birds in Alaska and Canada. 1980. Proposal is to seek amendments to migratory bird treaties with Canada, Mexico, and Japan to make these treaties consistent with the Soviet Union regarding subsistence hunting of migratory birds in Alaska and Canada. Wild birds comprise up to eight percent annually of the wildlife harvested for sustenance by people living in rural Alaska.

Environmental Assessment on Proposed Hunting Regulations on Black Ducks. 1983. The U.S. Fish and Wildlife Service has determined that the harvest of black ducks should be reduced by means of further restrictions on hunting regulations beyond those restrictions in effect previously. The proposed action will allow continued hunting of black ducks but will reduce the number of days in which black duck hunting will occur or reduce the daily bag and possession limit on this species or both in individual States of the Atlantic Flyway and throughout the Mississippi Flyway.

Environmental Assessment on Proposed Hunting Regulations on Canvasback Ducks. 1983. The U.S. Fish and Wildlife Service has determined that canvasback ducks should be managed as eastern and western populations and that modification of harvest strategies is required in the three eastern Flyways. Accordingly, the Service proposes to manage canvasbacks as two separate populations, to change the focus of harvest regulation from one of area closure to one of restrictive bag limits, and to initiate an experimental canvasback season in portions of the closed area in the Atlantic Flyway when established criteria are met. The Service has considered the alternatives of a return to procedures used prior to 1973 or no action, neither of which provide for an improved management of the resource. The effects of these management changes will continue to be monitored through operational and special surveys on an annual basis.

Environmental Assessment on Proposed Hunting Regulations on Eastern Population of Whistling (Tundra) Swans. 1984. The U.S. Fish and Wildlife Service has determined that hunting of eastern population (EP) whistling (tundra) swans is justified based on population levels occurring in specific habitats during migration and winter. Accordingly, the Service proposes to establish an experimental hunting season of these birds in North Carolina in the Atlantic Flyway and in Montana and North and South Dakota in the Central Flyway. The Service has considered the alternative of continuing to manage swans in the Atlantic Flyway without a harvest program or no action. The effects of these management changes will be monitored through operational and special surveys on an annual basis.

Environmental Assessment on Proposed Guidelines for Migratory Bird Hunting Regulations on Federal Indian Reservations and Ceded Lands. 1985. The proposal establishes guidelines for migratory bird hunting regulations on Federal Indian reservations (including Indian Territory) and ceded lands. The guidelines provide members of tribes that have recognized reserved hunting rights some flexibility in migratory bird hunting regulations while maintaining the closed season requirement mandated by the 1916 Migratory Bird Treaty with Canada. The guidelines also offer the possibility for tribes with full wildlife management authority to establish migratory bird hunting seasons for non-tribal

members that may differ from those in the State(s) in which the reservations are located. Opening and closing dates and season length for non-tribal members on these reservations would still have to be within Federal frameworks for migratory bird hunting seasons, and all other Federal hunting regulations also would apply to non-tribal hunters. Most such seasons will be established experimentally, and safeguards make it unlikely that the hunting seasons will have adverse impacts on the migratory bird resource

Environmental Assessment to Establish Restrictive Hunting Regulations to Reduce Waterfowl Harvest, 1985 Hunting Season. 1985. Proposal establishes duck hunting regulations during the 1985 hunting season that are more restrictive than during recent years, because of unusually low numbers of most duck species. The reduced numbers largely are due to drought conditions on the principal breeding grounds in Canada and the United States. The more restrictive regulations are needed to ensure that hunting loss will not further reduce duck numbers or prevent population increases when environmental conditions improve. Goose populations have been affected much less adversely by drought, and regulations for most goose populations are similar to those established in the 1984–85 hunting season.

Environmental Assessment on Proposed Hunting Regulations on Eastern Population of Woodcock. 1985. Proposal is to restrict woodcock hunting season to 45 days in the Atlantic Flyway with a daily bag limit of three. A significant decline in woodcock abundance has occurred since the 1960s in the East, and the proposed action may help stabilize or increase the population over the three-year period of the proposal.

Environmental Assessment on Waterfowl Hunting Regulations Frameworks for 1986. 1986. Because duck populations were down and breeding habitats suffered drought, conservative harvest regulations were established for the 1985–86 hunting season to return additional ducks to the breeding grounds and rebuild populations. Improvements were observed in breeding habitat conditions and duck population levels in 1986, but restrictive regulation frameworks need to be continued to ensure that hunting will not further reduce the subsequent breeding population of ducks or hinder population recovery when environmental conditions improve on the breeding grounds.

Environmental Assessment on North American Waterfowl Management Plan. 1986. The Proposal is to develop joint Federal/private initiatives restoring waterfowl populations to numbers present during the 1970s. Approval of this Plan by the governments of the U.S. and Canada would not constitute a binding commitment by the two nations to carry out all strategies in the Plan or to bear all costs of execution. Rather, this Plan would be a vehicle to draw in non-government sources to take direct action to benefit the waterfowl resources.

Final Supplemental Environmental Impact Statement: Issuance of Annual Regulations Permitting the Sport Hunting of Migratory Birds. 1988. SEIS 88 updated the 1975 Final Environmental Statement for the Issuance of Annual Regulations Permitting the Sport Hunting of Migratory Birds (FES 75). The proposed action of SEIS 88 was the same as that of FES 75, i.e., to continue issuing annual migratory bird hunting regulations. New alternative approaches to issuing the regulations, however, were considered. The Service's preferred alternative in SEIS 88 was to stabilize the 'framework' regulations (i.e., season lengths and daily bag limits) for fixed periods of time, subject to annual review and possible change according to population status; and to control the use of 'special' regulations (i.e., bonus bags, special regulations). SEIS 88 presented detailed information on migratory bird hunting regulations and the current status of migratory bird populations.

Environmental Assessment: Proposal to Establish Operational General Swan Hunting Seasons in the Pacific Flyway. 2003. A tundra swan hunting season that also permitted the take of a limited number of trumpeter swans in the Pacific Flyway was instituted in 1995. The Service issued a sequence of Environmental Assessments in August 1995, July 2000 and June 2001 that found no significant impact with respect to general swan hunting seasons in the Pacific Flyway. The 2003 Environmental Assessment addresses information gained over two hunting seasons and includes discussion of public comments and concerns during the entire history of this process, new and supplemental information gathered by the Service and cooperators during fall and winter surveys, as well as updated harvest information from the past two hunting seasons.

Final Environmental Impact Statement on Resident Canada Goose Management. 2005. The objective of the FEIS is to provide a regulatory mechanism that would allow State and local agencies, other Federal agencies, and groups and individuals to respond to damage complaints or damages by resident Canada geese. The FEIS is a comprehensive programmatic plan intended to guide and direct resident Canada goose population growth and management activities in the conterminous United States. The Draft Environmental Impact Statement (DEIS) was published in March 2002. Over 2,700 public comments were considered when revising the document.

Final Environmental Impact Statement on Light Goose Management. 2007. The FEIS analyzes the potential environmental impacts of several management alternatives for addressing problems associated with overabundant light goose populations. The FEIS analyzes the direct, indirect, and cumulative impacts related to several management alternatives and provides the public with responses to comments from the Draft EIS.

Final Environmental Assessment Proposed Hunting Regulations for the Lower Colorado River Valley Population of Greater Sandhill Cranes in the Pacific Flyway. 2007. This assessment considers the action to institute a limited harvest of sandhill cranes from the Lower Colorado River Valley Population by reviewing current management strategies and population objectives, and examining alternatives to current management programs.

Environmental Assessment Duck Hunting Regulations for 2008. The Service proposes to issue liberal duck hunting regulations in 2008 and the projected harvest under this alternative is about 15.8 million ducks. This alternative was viewed appropriate for a number of reasons including: (1) these regulations likely will not prevent mallards in the Mid-continent region from reaching the population goal of 8.7 million next spring, (2) these regulations are consistent with the long-term welfare of mallards in the eastern U.S. and Canada, and (3) most other duck populations are either near or at their population goals.

Environmental Assessment Zones and Split Seasons for Duck Hunting. 2011. Zones and split seasons are "special regulations" designed to distribute hunting opportunities and harvests according to temporal, geographic, and demographic variability in waterfowl populations. States have been allowed the option of dividing their allotted hunting days into two (or in some cases, three) segments to take advantage of species-specific peaks of abundance or to satisfy hunters in different areas who want to hunt during the peak of waterfowl abundance in their area. The split season option does not fully satisfy many States who wish to provide a more equitable distribution of harvest opportunities. Therefore, the Service also has allowed the establishment of independent seasons in two or more zones within States for the purpose of providing more equitable distribution of harvest opportunity for hunters throughout the state. The Service conducted a review of the use of zones and split seasons in 1990. The purpose of this environmental assessment is to evaluate various alternatives used to control the use of split seasons and zones for duck hunting within States.

Final Environmental Assessment Proposed Hunting Regulations for the Eastern Population of Sandhill Cranes in the Mississippi Flyway. 2011. This assessment considers an action to institute a limited harvest of sandhill cranes from the Eastern Population by reviewing current management strategies and population objectives, and examining alternatives to current management programs. The plan proposes hunting of this population when the three-year average of the fall population survey exceeds 30,000 cranes.



WATERFOWL FLYWAY COUNCILS

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THE WATERFOWL COUNCILS

A Conservation Partnership

What is a Waterfowl Council?

It's doubtful if many duck hunters know the answer to that question. Yet these Councils are responsible for the planning of many programs that will influence the kind of duck hunting these same sportsmen will have in the future.

Because the activities of the Waterfowl Councils do mean so much to so many people – not only to duck hunters but to the millions of people who get their fun just watching the birds – this circular has been prepared to tell the Council story. Its purpose is to explain the basic waterfowl problem and the current approach to a solution, why the Councils came into existence, how they are organized, what they seek to do to improve management of the waterfowl resource, and ways in which interested people can help to achieve the goals that the Waterfowl Councils establish.

Right at the outset it should be explained that the Federal Government under international treaties with Canada and Mexico is responsible for the conservation – that also includes management – of migratory waterfowl. The discharge of that responsibility rests with the U. S. Department of the Interior and, more specifically, with the Bureau of Sport Fisheries and Wildlife of the Fish and Wildlife Service. However, the Service recognizes that Uncle Sam by himself can never do the job that's called for in waterfowl management. He must have the active assistance of every other agency interested in wildlife resources – both governmental and private – if the job is to be done. It was to develop such a partnership approach to the terrific task of solving today's waterfowl problem that Waterfowl Councils were created.

Our Waterfowl Problem

Our present waterfowl conservation difficulties are the result of three things. The number of people on this Continent is rocketing upward and more and more of us are turning to the outdoors and wildlife resources for recreation. As the demand for more opportunity to enjoy wildlife increases, the habitat needed to produce and maintain wildlife shrinks steadily in the face of urban, industrial, and agricultural encroachment. At the same time, man's advances toward an easier way of life for himself through technology – modern highways, high-speed cars, electronic bird calls, better guns, drainage, and pesticides – are giving the wild creatures new troubles in their reduced living space. How to approach this big problem of keeping our waterfowl in a complex world is the concern of wildlife managers generally.

Ducks Supply the Pattern

The ducks themselves have had something to say about how we should organize our conservation efforts. Basically, waterfowl of this Continent are divided into groups that have discernible patterns of migration between their nesting and wintering grounds. Hunters, by returning the bands they find on the legs of ducks and geese they shoot, have produced this information. Although there is considerable overlapping of these flight lanes and a certain

amount of trading back and forth between them by waterfowl, studies of band recoveries have shown that the various migration patterns for ducks and geese break down into four major flyways. They are referred to as the Pacific, Central, Mississippi, and Atlantic Flyways.

Because of this distinct pattern of waterfowl movement and the relationship of nesting migration, and wintering areas for various groups of birds in these lanes, it became obvious that plans for the resource had to be designed on a flyway basis if they were to be successful and meet future needs.

To develop adequate flyway planning, it is necessary to understand how the birds in each flyway behave and how various conditions affect their numbers. Also, ways had to be found to correct the limiting factors and to manipulate the waterfowl population and its environment so that an increase in numbers would result. All this is the role of research. Waterfowl management then employs the various tools and programs developed by this research.

Waterfowl management involves many things. It includes the maintenance of present wildlife habitat, development of additional good waterfowl areas, manipulation of water levels, planting of crops for food and cover to maintain increased numbers of wild fowl, and regulated harvest of the annual surplus of waterfowl by hunting. It means establishing refuges, both State and Federal, to give the birds places to feed and rest and to provide people greater opportunities to enjoy the resource. The locations of these managed areas also are designed to provide better distribution of the birds during their annual migrations.

Plans for all these studies and developments must be geared to the waterfowl situation, flyway by flyway. Sportsmen-in-the know recognize the value of this approach and support it vigorously.

So, too, well-informed sportsmen support the regulation of hunting flyway by flyway. Before the flyway concept was developed, waterfowl managers established hunting regulations on a nationwide basis. This had the great disadvantage of forcing hunting restrictions on all areas when they were actually needed only in certain sections. Conversely, nationwide relaxations in regulations permitted excessive harvest in some areas and of some species that conditions did not warrant. Regulations of hunting by flyways not only benefits the ducks and geese, but it also permits maximum hunting opportunity consistent with the local waterfowl situation.

Within a flyway, there is good reason to be concerned about what happens in other parts of the flyway. On the other hand, except for the common effort to make certain no abuse of the waterfowl resource occurs, there is little reason for people in one flyway to enter into management decisions elsewhere unless their own waterfowl populations are also affected.

How Waterfowl Councils Originated

Once the flyway concept as a basis for hunting regulations had been advanced by the Fish and Wildlife Service, it was not long before the need for cooperative efforts in other fields of waterfowl management and research began to receive greater attention. Federal-State partnership in wildlife management received its first real stimulus from the Pittman-Robertson

Act of 1937, which created the Federal Aid in Wildlife Restoration program. This Act established a close working arrangement between Federal and State wildlife agencies. From such a fertile field of common interest, cooperative efforts branched out rapidly, including some work with waterfowl.

The partnership effort in waterfowl management on a flyway basis, however, did not make its appearance until after World War II, and research needs originally prompted this development. In each flyway, the pressing demand for quick answers to special problems launched cooperative projects as the most effective way to do the job. In the Atlantic Flyway, a group of Northeastern States and several conservation organizations in 1946 formed a Joint Black Duck Committee. Later this committee became the Joint Waterfowl Committee and a South Atlantic Waterfowl Committee was formed in the Southeastern States. In 1947, waterfowl technicians of the Northern States in the Mississippi Flyway started a team approach to their problems. The following year the Pacific Flyway Study Committee was formed and State and Federal workers in the Central Flyway began to explore ways to help each other in duck programs.

Spurred by the success of these first cooperative efforts, the International Association of Game, Fish, and Conservation Commissioners adopted a resolution at its 1951 convention in Rochester, N.Y., calling for the setting up of a National Waterfowl Council and also a Waterfowl Council in each of the flyways. The National Council would be composed of two representatives from each Flyway Council to deal with nationwide problems. The next year the four Flyway Councils and the National Council were organized.

What is the Flyway Council?

The Flyway Council is a formal organization representing all State fish and game agencies in a flyway. Each State has one vote – cast either by the Director or his designated representative. In the Eastern Flyway, the Council is called the Atlantic Waterfowl Council. The other Councils are known as the Mississippi, Central, and Pacific Flyway Councils. The U.S. Fish and Wildlife Service, through its Bureau of Sport Fisheries and Wildlife, and the Canadian Wildlife Service work closely with these Councils in all phases of waterfowl management, including setting up the hunting regulations. Canadian provincial wildlife agencies now participate in Council activities, too. In addition, representatives of private, national conservation organizations often attend the Council sessions to coordinate their work with the Council programs.

The sole purpose of the four Flyway Councils is to preserve the valuable waterfowl resource for all the people. The Councils seek to achieve this goal by assisting in cooperative planning and action by Federal, State, and Provincial Governments, private conservation agencies, and the general public – on both sides of the border. Their chief tools are research and proved wildlife management techniques.

How the National Waterfowl Council Functions

Two representatives elected by each of the four Flyway Councils make up the National Waterfowl Council. Each year, members of this National Council along with representatives of

other national conservation organizations discuss waterfowl regulations with the Fish and Wildlife Service. This entire group is known as the Waterfowl Advisory Committee.

The Waterfowl Advisory Committee makes recommendations to the Director of the Bureau of Sport Fisheries and Wildlife regarding the proposed hunting regulations. With his staff, the Director then drafts the regulations. Following review of the proposed regulations by the Commissioner of Fish and Wildlife and the Assistant Secretary for Fish and Wildlife, these proposals go to the Secretary of the Interior for his action. The States then establish their waterfowl hunting season dates within the framework that is finally adopted.

A Planned Attack

Although Flyway Council members give serious attention to the matter of annual regulations to guide the hunting harvest, they recognize that the task of highest priority is to provide comprehensive solutions for the basic problems that threaten the future of American waterfowling.

Under the impetus of the council approach, wildlife technicians – Federal, State, and private – in all four flyways have dug into the task of improving waterfowl management with renewed vigor. As they progressed, the need for a blueprint to guide waterfowl research and management efforts in each flyway became increasingly clear to them. No one agency had the resources or personnel to do the big job called for: it had to be a well-coordinated, full-partnership team effort. A waterfowl management plan for each flyway that would spell out in detail what has to be done, by whom, and in what order, thus became a necessity.

With Federal waterfowl biologists assigned to the task of coordinating these efforts, each flyway now is implementing such a plan.

Flyway Plan Objective

These flyway management plans generally are designed to:

- 1. Accelerate collection and analysis of banding information and other biological data which will indicate important nesting, migration, and wintering areas and the segments of the North American waterfowl population associated with them.
- 2. Establish the pattern, priority, and responsibility for acquiring areas needed for managing waterfowl populations and for continuing our enjoyment of the resource.
- 3. Give greater emphasis to the research needed to improve waterfowl management practices, including those related to producing more ducks and geese and permitting a safe harvest of the resource each year.
- 4. Promote the increased use on all areas under public jurisdiction of the findings of wildlife research workers and the experience of management.

- 5. Create incentives to preserve existing habitat and develop new habitat, and encourage beneficial practices for waterfowl on private lands.
- 6. Obtain public understanding and support for the waterfowl program and its objectives.

How We Can All Help

Here is the key to a successful flyway program! Whether we are hunters, bird-lovers, or plain American citizens, young or old, men or women, we can all help by-

- 1. Supporting the steps our Government and cooperating private agencies take to carry out the waterfowl program in our flyways.
- 2. Promoting, wherever we have the opportunity and in every possible way, measures that benefit waterfowl, such as those that-
 - (a) Oppose projects that are unnecessarily destructive to waterfowl or the wetland habitat they must have.
 - (b) Encourage others to conduct local projects to restore wetlands designated as important to waterfowl.
 - (c) Endorse efforts to incorporate in Government construction projects necessary developments to enhance waterfowl values.
 - (d) Develop or help others develop small marshes to serve as nesting, resting, or feeding areas for ducks and other wildlife.
 - (e) Assist others to carry out land and water management practices which your local wildlife officials indicate are beneficial to waterfowl.
 - (f) Seek and follow the advice of wildlife technicians on your local waterfowl problems.
 - (g) Join in local efforts to resolve conservation issues.
- 3. Observe the hunting regulations, which are necessary to ensure a fair opportunity for everyone to enjoy the resource, and practice good sportsmanship.

That's the story of the Flyway Councils and their role in meeting the needs of migratory waterfowl in America's Space Age future.

[Note: Identical MOUs are in effect with all four Flyway Councils]

MEMORANDUM OF UNDERSTANDING

between the

U.S. FISH AND WILDLIFE SERVICE

and the

PACIFIC FLYWAY COUNCIL

for the

COOPERATIVE EXCHANGE, INTERPRETATION, AND EVALUATION OF DATA AND INFORMATION USED FOR DEVELOPING MIGRATORY BIRD REGULATIONS

This Memorandum of Understanding is between the Pacific Flyway Council, represented by the Chairperson, and hereinafter referred to as the Council; and the U.S. Fish and Wildlife Service, represented by the Director, and hereinafter referred to as the Service.

WHEREAS, the Council has the responsibility under its Bylaws to represent the states comprising the Pacific Flyway, namely, Alaska, Washington, Oregon, Idaho, California, Utah, Arizona and the Pacific Flyway portions of Colorado, New Mexico, Montana, and Wyoming, regarding cooperative State-Federal management of all species of migratory birds (as listed in the List of Migratory Birds in Title 50 of the Code of Federal Regulations, Section 10.13) in the Pacific Flyway; and

WHEREAS, the Service has the responsibility under various acts, laws and treaties of the United States, notably the Migratory Bird Treaty Act of 1918 and the Fish and Wildlife Conservation Act of 1980, as amended, to manage migratory bird resources of North America while they are within the United States; and

WHEREAS, the Service has designated a staff member (Pacific Flyway Representative) that is assigned to serve as a liaison for the coordination of management activities of the member states and the U.S. Fish and Wildlife Service and to make such findings available to the Pacific Flyway Council; and

WHEREAS, the management of the migratory bird resources in the Pacific Flyway has traditionally been conducted cooperatively between the Service and member States of the Council, and includes survey and monitoring activities such as the banding and marking of migratory birds; conducting populations surveys; conducting experiments on the effects of regulatory changes on allowable take and population status; and migratory bird populations; inventorying, monitoring, acquiring, and managing migratory bird habitats; assisting in the development of Cooperative Flyway Management Plans; and conducting public information and education programs; and

WHEREAS, the expenses of conducting these management functions are provided jointly by the Service and member states of the Council, the latter utilizing both Federally-provided and State monies; and

WHEREAS, the issuance and enforcement of regulations occurs at both the Federal and State levels as a primary means of affording adequate protection to the migratory bird resources within the Pacific Flyway;

NOW, THEREFORE, it is mutually agreed that:

- 1. The Service will annually request the Pacific Flyway Council to name no more than two persons, hereinafter named Flyway Migratory Bird Consultants, to represent the Council in working with the Service.
- 2. The Flyway Migratory Bird Consultants, or in the event they find themselves unable to serve, their Council-appointed alternates shall be available for participation in meetings of the Service Regulations Committee.
- 3. The Flyway Migratory Bird Consultants will serve on a calendar year basis, in order to best provide technical input into the development of migratory bird regulations. The Council will inform the Service prior to January 1 of each year the individuals selected by the Council to serve as the Flyway Migratory Bird Consultants during the ensuing calendar year.
- 4. The Flyway Migratory Bird Consultants shall serve without compensation.
- 5. The Flyway Migratory Bird Consultants will participate in meetings of the Service Regulations Committee, and other meetings as may be deemed appropriate, by providing statistical data and information, including interpretation thereof, to the Service Regulations Committee. The purpose of this technical input will be to assist the Service Regulations Committee to develop national and Pacific Flyway migratory bird regulations recommendations for consideration by the Director. Final decisions are reserved for the Service Director.
- 6. To facilitate the participation of the Flyway Migratory Bird Consultants, the Service shall reimburse the participants directly for actual travel from their normal places of employment to and from meeting locations of the Service Regulations Committee and such other meetings as may be deemed appropriate, and for per diem at authorized rates.
- 7. In exchange for the participation of the Flyway Migratory Bird Consultants, the Service shall provide International, continental, flyway, national, and available State information on migratory bird populations and habitats, along with necessary technical assistance required for the interpretation, evaluation, and analysis of such information and data. Such materials may include technical publications, administrative reports, and unpublished data.
- 8. In turn, the Flyway Migratory Bird Consultants shall provide to the Service additional materials from Flyway Council member states related to the subjects listed in item 7 which may not otherwise be available to the Service. Such materials may include technical publications, administrative reports, and unpublished data.
- 9. Each and every provision of this Memorandum of Understanding is subject to the laws of the United States and the laws and regulations of the various States from which the Flyway Migratory Bird Consultants may be selected.

- 10. Nothing in this Memorandum of Understanding shall be construed as obligating either party to the expenditure of funds or for the future payment of money in excess of appropriations authorized by law.
- 11. Nothing contained herein shall be construed as limiting in any way the responsibility and authority, as defined by law, of the Director, U.S. Fish and Wildlife Service, and as defined by Bylaws, of the Chairperson, Pacific Flyway Council.
- 12. This Memorandum of Understanding shall become effective when signed by the parties hereto and shall continue in force until terminated by either party upon notice in writing to the other of his intention to do so. Amendments to this Memorandum of Understanding may be proposed by either party and shall become effective upon written approval by both parties.
- 13. This Memorandum of Understanding supersedes all previous Memoranda of Understanding executed with the Pacific Flyway Council relating to migratory game bird regulations and has been expanded to include all migratory game and non-game birds.

IN WITNESS WHEREOF, the parties hereto have executed this Memorandum of Understanding as of the date last signed below.

U.S. FISH AND WILDLIFE SERVICE

By:	
DIRECTOR	(Date)
DACHEIC EL WWAY COUNCH	
PACIFIC FLYWAY COUNCIL	
By:	
CHAIRPERSON	(Date)



NORTH AMERICAN GAME BIRDS HUNTED DURING THE FALL-WINTER SEASON

English Name Scientific Name SWANS, GEESE, AND DUCKS **FAMILY ANATIDAE Subfamily Anserinae** Tribe Cygnini Tundra Swan Cygnus columbianus Trumpeter Swan Cygnus buccinator *Whooper Swan Cygnus cygnus Tribe Anserini Greater White-fronted Goose Anser albifrons **Subspecies** Anser albifrons elgasi Tule White-fronted Goose Lesser White-fronted Goose Anser erythropus Chen caerulescens Snow Goose **Subspecies** Lesser Snow Goose Chen caerulescens caerulescens Greater Snow Goose Chen caerulescens atlantica Ross' Goose Chen rossii *Emperor Goose Chen canagica Brant Branta bernicla **Subspecies** Atlantic Brant Branta bernicla hrota Branta bernicla nigricans Black Brant Canada Goose Branta canadensis Subspecies Cackling Canada Goose Branta canadensis minima Aleutian Canada Goose Branta canadensis leucopareia Branta canadensis taverneri Taverner's Canada Goose Dusky Canada Goose Branta canadensis occidentalis Interior Canada Goose Branta canadensis interior Western Canada Goose Branta canadensis moffitti Lesser Canada Goose Branta canadensis parvipes Giant Canada Goose Branta canadensis maxima Atlantic Canada Goose Branta canadensis canadensis Richardson's Canada Goose Branta canadensis hutchinsii Vancouver Canada Goose Branta canadensis fulva Ducks Subfamily Dendrocygninae Whistling-Ducks Tribe Dendrocygnini Fulvous Whistling-Duck Dendrocygna bicolor Black-bellied Whistling-Duck Dendrocygna autumnalis **Subfamily Anatinae Shelducks** Tribe Cairinini Wood Duck Aix sponsa Muscovy Duck Cairina moschata **Dabbling Ducks** Tribe Anatini Green-winged Teal Anas crecca American Black Duck Anas rubripes Mottled Duck Anas fulvigula Mallard Anas platyrhynchos Northern Pintail Anas acuta Blue-winged Teal Anas discors Cinnamon Teal Anas cyanoptera Northern Shoveler Anas clypeata Gadwall Anas strepera American Wigeon Anas americana

^{*}No current open season

English Name Scientific Name **Pochards and Allies** Tribe Aythyini Canvasback Avthva valisineria Redhead Aythya americana Aythya collaris Ring-necked Duck Aythya marila Greater Scaup Aythya affinis Lesser Scaup Eiders, Scoters, Mergansers and Allies Tribe Mergini Somateria mollissima Common Eider **Subspecies** American Eider Somateria mollissima dresseri Northern Eider Somateria mollissima borealis Pacific Eider Somateria mollissima v-nigra Somateria spectabilis King Eider *Spectacled Eider Somateria fischeri *Steller's Eider Polysticta stelleri Harlequin Duck Histrionicus histrionicus **Subspecies** Pacific Harlequin Duck Histrionicus histrionicus pacificus *Atlantic Harlequin Duck Histrionicus histrionicus histronicus Long-tailed Duck Clangula hyemalis Black Scoter Melanitta nigra Surf Scoter Melanitta perspicillata White-winged Scoter Melanitta fusca Common Goldeneye Bucephala clangula Barrow's Goldeneye Bucephala islandica Bufflehead Bucephala albeola Hooded Merganser Lophodytes cucullatus Common Merganser Mergus merganser Red-breasted Merganser Mergus serrator Stiff-tailed Ducks Tribe Oxyurini Ruddy Duck Oxyura jamaicensis RAILS, GALLINULES AND COOTS **FAMILY RALLIDAE** Clapper Rail Rallus longirostris Subspecies *Yuma Clapper Rail Rallus longirostris yumanensis *California Clapper Rail Rallus longirostris obsoletus *Light-footed Clapper Rail Rallus longirostris levipes Rallus elegans King Rail Virginia Rail Rallus limicola Sora Porzana carolina Purple Gallinule Porphyrio martinica Common Moorhen Gallinula chloropus American Coot Fulica americana *Yellow Rail Coturnicops noveboracensis *Black Rail Laterallus jamaicensis **CRANES FAMILY GRUIDAE** Sandhill Crane Grus canadensis Subspecies *Cuban Sandhill Crane Grus canadensis nesiotes *Florida Sandhill Crane Grus canadensis pratensis *Mississippi Sandhill Crane Grus canadensis pulla Canadian Sandhill Crane Grus canadensis rowani Lesser Sandhill Crane Grus canadensis canadensis Greater Sandhill Crane Grus canadensis tabida Grus americana *Whooping Crane

^{*}No current open season

English Name	Scientific Name
	FAMILY SCOLOPACIDAE
	Subfamily Scolopacinae
Snipe	Tribe Gallinagoini
Wilson's snipe	Gallinago delicata
Woodcock	Tribe Scolopacini
American Woodcock	Scolopax minor
PIGEONS AND DOVES	FAMILY COLUMBIDAE
	Subfamily Columbinae
Scaly-naped Pigeon	Patagioenas squamosa
White-crowned Pigeon*	Patagioenas leucocephala
Band-tailed Pigeon	Patagioenas fasciata
Subspecies	
Pacific Band-tailed Pigeon	Patagioenas fasciata monilis
Interior Band-tailed Pigeon	Patagioenas fasciata fasciata
	Subfamily Leptotilinae
White-winged Dove	Zenaida asiatica
Zenaida Dove	Zenaida aurita
Mourning Dove	Zenaida macroura
White-tipped Dove	Leptotila verreauxi
CROWS AND JAYS	FAMILY CORVIDAE
American Crow	Corvus brachyrhynchos
Fish Crow	Corvus ossifragus
Northwestern Crow	Corvus caurinus

^{*}No current open season

BIRD SPECIES TAKEN BY SUBSISTENCE HUNTERS (as of 29 March, 2011 [76 FR 17353-17360])

English Name

SWANS, GEESE, AND DUCKS Whistling-Ducks, Swans, and Geese

Tundra Swan except no hunting or egg gathering in Units 9(D) and 10.

Greater White-fronted Goose

Snow Goose

Lesser Canada Goose

Taverner's Canada Goose

Aleutian Canada Goose except in the Semidi Islands.

Cackling Canada Goose except no egg gathering is permitted.

Black Brant except no egg gathering is permitted in the Yukon/Kuskokwim Delta and the North Slope regions.

Ducks

Dabbling Ducks

Green-winged Teal

Mallard

Northern Pintail

Blue-winged Teal

Northern Shoveler

Gadwall

American Wigeon

Eurasian Wigeon

Pochards and Allies

Canvasback

Redhead

Ring-necked Duck

Greater Scaup

Lesser Scaup

Eiders, Scoters, Mergansers and Allies

Common Eider

King Eider

Harlequin Duck

Long-tailed Duck

Black Scoter

Surf Scoter

White-winged Scoter

Common Goldeneye

Barrow's Goldeneye

Bufflehead

Hooded Merganser

Common Merganser

Red-breasted Merganser

LOONS

Red-throated Loon

Arctic Loon

Pacific Loon

Common Loon

Yellow-billed Loon In the North Slope Region

only, a total of up to 20 yellow-billed loons inadvertently caught in

fishing nets may be kept for subsistence purposes.

Scientific Name

FAMILY ANATIDAE **Subfamily Anserinae**

Tribe Cygnini

Cygnus columbianus

Tribe Anserini

Anser albifrons

Chen caerulescens

Branta canadensis parvipes

Branta canadensis taverneri

Branta canadensis leucopareia

Branta canadensis minima

Branta bernicla nigricans

Subfamily Anatinae Tribe Anatini

Anas crecca

Anas platyrhynchos

Anas acuta

Anas discors

Anas clypeata

Anas strepera

Anas americana

Anas penelope

Tribe Aythyini

Aythya valisineria

Aythya americana

Aythya collaris Aythya marila

Aythya affinis

Tribe Mergini

Somateria mollissima

Somateria spectabilis

Histrionicus histrionicus

Clangula hvemalis

Melanitta nigra

Melanitta perspicillata

Melanitta fusca

Bucephafa clangula

Bucephafa islandica

Bucephafa afbeoloa

Lophodytes cucullatus

Mergus merganser

Mergus serrator

FAMILY GAVIIDAE

Gavia stellata

Gavia arctica

Gavia pacifica

Gavia immer

Gavia adamsii

English Name

GREBES

Horned Grebe Red-necked Grebe

PETRELS AND SHEARWATERS

Northern Fulmar

CORMORANTS AND SHAGS

Double-crested Cormorant Pelagic Cormorant

CRANES

Sandhill Crane

PLOVERS

Black-bellied Plover Common Ringed Plover

OYSTERCATCHERS

Black Oystercatcher

SNIPE, WOODCOCK, SANDPIPERS, TURNSTONES, AND ALLIES

Greater Yellowlegs Lesser Yellowlegs Spotted Sandpiper Bar-tailed Godwit Ruddy Turnstone Semipalmated Sandpiper Western Sandpiper Baird's Sandpiper

Least Sandpiper

Dunlin

Long-billed Dowitcher Common Snipe Red-necked Phalarope

Sharp-tailed Sandpiper

Red Phalarope

GULLS, TERNS, AND SKIMMERS

Pomarine Jaeger
Parasitic Jaeger
Long-tailed Jaeger
Bonaparte's Gull
Mew Gull
Herring Gull
Slaty-backed Gull
Glaucous-winged Gull
Glaucous Gull

Sabine's Gull Black-legged Kittiwake

Red-legged Kittiwake Ivory Gull Arctic Tern Aleutian Tern Scientific Name

FAMILY PODICIPEDIDAE

Podiceps auritus Podiceps grisegena

FAMILY PROCELLARIIDAE

Fulmarus glacialis

FAMILY PHALACROCORACIDAE

Phalacrocorax auritus Phalacrocorax pelagicus

FAMILY GRUIDAE

Grus canadensis

FAMILY CHARADRIIDAE

Pluvialis squatarola Charadrius hiaticula

FAMILY HAEMATOPODIDAE

Haematopus bachmani

FAMILY SCOLOPACIDAE

Tringa melanoleuca
Tringa flavipes
Actitis macularia
Limosa lapponica
Arenaria interpres
Calidris pusilla
Calidris mauri
Calidris bairdii
Calidris acuminata
Calidris minutilla
Calidris alpina

Limnodromus scolopaceus Gallinago gallinago Phalaropus lobatus Phalaropus fulicaria

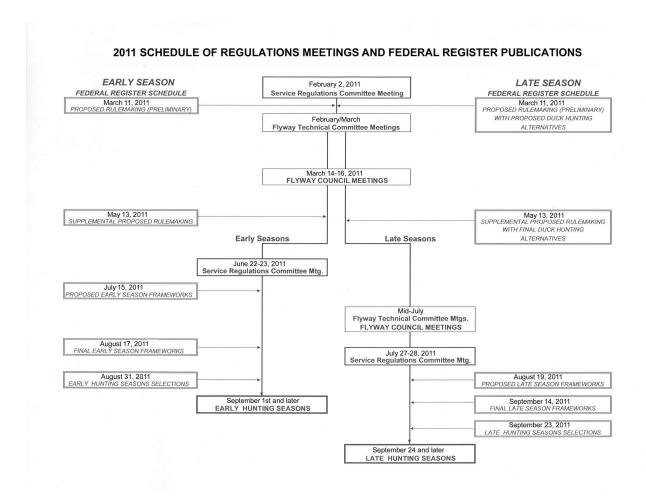
FAMILY LARIDAE

Stercorarius pomarinus
Stercorarius parasiticus
Stercorarius longicaudus
Larus philadelphia
Larus canus
Larus argentatus
Larus schistisagus
Larus glaucescens
Larus hyperboreus
Xema sabini
Rissa tridactyla
Rissa brevirostris
Pagophila eburnea
Sterna paradisaea
Sterna aleutica

English Name	Scientific Name
PUFFINS, MURRES, AUKLETS AND RELATIVES	FAMILY ALCIDAE
Common Murre	Uria aalge
Thick-billed Murre	Uria lomvia
Black Guillemot	Cepphus grylle
Pigeon Guillemot	Cepphus columba
Cassin's Auklet	Ptychoramphus aleuticus
Parakeet Auklet	Aethia psittacula
Least Auklet	Aethia pusilla
Whiskered Auklet	Aethia pygmaea
Crested Auklet	Aethia cristatella
Rhinoceros Auklet	Cerorhinca monocerata
Horned Puffin	Fratercula corniculata
Tufted Puffin	Fratercula cirrhata
OWLS	FAMILY STRIGIDAE
Great Horned Owl	Bubo scandiacus
Snowy Owl	Nyctea scandiaca

EXAMPLES OF FEDERAL REGISTER DOCUMENTS PERTAINING TO THE ESTABLISHMENT OF ANNUAL REGULATIONS FOR FALL-WINTER SEASONS, 2011-2012

Hunting regulation proposals are developed according to early and late season schedules (the cycle is illustrated in the Figure below) and the Service adopts them as Federal regulations by publication in the *Federal Register*.



A list of *Federal Register* documents pertaining to the establishment of annual regulations for 2010-11 is provided below, as are the internet links for accessing electronic copies of each document. Alternatively, each document can be downloaded directly from the following web address: http://www.gpoaccess.gov/fr/ or http://www.regulations.gov

If you would like a hard copy of any of these documents, please mail your request to the contact address listed at the front of this publication.

Federal Register/Vol. 76/No. 68/April 8, 2011/19876-19887

Migratory Bird Hunting; Proposed 2011-12 Migratory Game Bird Hunting Regulations (Preliminary) With Requests for Indian Tribal Proposals and Requests for 2013 Spring and Summer Migratory Bird Subsistence Harvest Proposals in Alaska; Proposed Rule. Document ID: FWS-R9-MB-2011-0014-0001 http://www.regulations.gov/#!documentDetail;D=FWS-R9-MB-2011-0014-0001

SUMMARY: The U.S. Fish and Wildlife Service proposes to establish annual hunting regulations for certain migratory game birds for the 2011-12 hunting season. We annually prescribe outside limits (frameworks) within which States may select hunting seasons. This proposed rule provides the regulatory schedule, describes the proposed regulatory alternatives for the 2011-12 duck hunting seasons, requests proposals from Indian Tribes that wish to establish special migratory game bird hunting regulations on Federal Indian reservations and ceded lands, and requests proposals for the 2013 spring and summer migratory bird subsistence season in Alaska. Migratory game bird hunting seasons provide opportunities for recreation and sustenance; aid Federal, State, and Tribal governments in the management of migratory game birds; and permit harvests at levels compatible with migratory game bird population status and habitat conditions.

Federal Register/Vol. 76/No. 120/June 22, 2011/36508-36510

Migratory Bird Hunting; Supplemental Proposals for Migratory Game Bird Hunting Regulations for the 2011-12 Hunting Season; Notice of Meetings; Proposed Rules. Document ID: FWS-R9-MB-2011-0014-0175

http://www.regulations.gov/#!documentDetail;D=FWS-R9-MB-2011-0014-0175

SUMMARY: We, the U.S. Fish and Wildlife Service, proposed in an earlier document to establish annual hunting regulations for certain migratory game birds for the 2011-12 hunting season. This supplement to the proposed rule provides the regulatory schedule, announces the Service Migratory Bird Regulations Committee and Flyway Council meetings, and provides Flyway Council recommendations resulting from their March meetings.

Federal Register/Vol. 76/No. 143/July 26, 2011/44730-44750

Migratory Bird Hunting; Proposed Frameworks for Early Season Migratory Bird Hunting Regulations; Notice of Meetings; Proposed Rule. Document ID: FWS-R9-MB-2011-0014-0204 http://www.regulations.gov/#!documentDetail;D=FWS-R9-MB-2011-0014-0204

SUMMARY: The U.S. Fish and Wildlife Service is proposing to establish the 2011-12 early-season hunting regulations for certain migratory game birds. We annually prescribe frameworks, or outer limits, for dates and times when hunting may occur and the maximum number of birds that may be taken and possessed in early seasons. Early seasons may open as early as September 1, and include seasons in Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands. These frameworks are necessary to allow State selections of specific final seasons and limits and to allow recreational harvest at levels compatible with population status and habitat conditions. This proposed rule also provides the final regulatory alternatives for the 2011-12 duck hunting seasons

Federal Register/Vol. 76/No. 166/August 26, 2011/53536-53561

Migratory Bird Hunting; Proposed Framework for Late-Season Migratory Bird Hunting Regulations; Proposed Rule. Document ID: FWS-R9-MB-2011-0014-0337 http://www.regulations.gov/#!documentDetail;D=FWS-R9-MB-2011-0014-0337

SUMMARY: The Fish and Wildlife Service is proposing to establish the 2011-12 late-season hunting regulations for certain migratory game birds. We annually prescribe frameworks, or outer limits, for

dates and times when hunting may occur and the number of birds that may be taken and possessed in late seasons. These frameworks are necessary to allow State selections of seasons and limits and to allow recreational harvest at levels compatible with population and habitat conditions.

Federal Register/Vol. 76/No. 168/August 30, 2011/54052-54070

Migratory Bird Hunting; Final Frameworks for Early-Season Migratory Bird Hunting Regulations; Final Rule. Document ID: FWS-R9-MB-2011-0014-0347

http://www.regulations.gov/#!documentDetail;D=FWS-R9-MB-2011-0014-0347

SUMMARY: This rule prescribes final early-season frameworks from which the States, Puerto Rico, and the Virgin Islands may select season dates, limits, and other options for the 2011-12 migratory bird hunting seasons. Early seasons are those that generally open prior to October 1, and include seasons in Alaska, Hawaii, Puerto Rico, and the Virgin Islands. The effect of this final rule is to facilitate the selection of hunting seasons by the States and Territories to further the annual establishment of the early-season migratory bird hunting regulations.

Federal Register/Vol. 76/No. 170/September 1, 2011/54658-54674

Migratory Bird Hunting; Early Seasons and Bag and Possession Limits for Certain Migratory Game Birds in the Contiguous United States, Alaska, Hawaii, Puerto Rico, and the Virgin Islands; Final Rule. Document ID: FWS-R9-MB-2011-0014-0351

http://www.regulations.gov/#!documentDetail;D=FWS-R9-MB-2011-0014-0351

SUMMARY: This rule prescribes the hunting seasons, hours, areas, and daily bag and possession limits of mourning, white-winged, and white-tipped doves; band-tailed pigeons; rails; moorhens and gallinules; woodcock; common snipe; sandhill cranes; sea ducks; early (September) waterfowl seasons; migratory game birds in Alaska, Hawaii, Puerto Rico, and the Virgin Islands; and some extended falconry seasons. Taking of migratory birds is prohibited unless specifically provided for by annual regulations. This rule permits taking of designated species during the 2011-12 season.

Federal Register/Vol. 76/No 183/September 21, 2011/58682-58704

Migratory Bird Hunting; Final Frameworks for Late-Season Migratory Bird Hunting Regulations; Final Rule. Document ID: FWS-R9-MB-2011-0014-0355 http://www.regulations.gov/#!documentDetail;D=FWS-R9-MB-2011-0014-0355

SUMMARY: The Fish and Wildlife Service prescribes final late-season frameworks from which States may select season dates, limits, and other options for the 2011-12 migratory bird hunting seasons. These late seasons include most waterfowl seasons, the earliest of which commences on September 24, 2011. The effect of this final rule is to facilitate the States' selection of hunting seasons and to further the annual establishment of the late-season migratory bird hunting regulations.

EXAMPLES OF FEDERAL REGISTER DOCUMENTS PERTAINING TO THE ESTABLISHMENT OF ANNUAL REGULATIONS FOR SUBSISTENCE HUNTING SEASONS, 2011

A list of *Federal Register* documents pertaining to the establishment of annual regulations for the 2011 subsistence hunting seasons is provided below, as are the internet links for accessing electronic copies of each document. Alternatively, each document can be downloaded directly from the following web address: http://www.gpoaccess.gov/fr/ or http://www.gpoaccess.gov/fr/ or http://www.regulations.gov

If you would like a hard copy of any of these documents, please mail your request to the contact address listed at the front of this publication.

Federal Register/Vol. 75/No. 206/October 26, 2010/65599-65605 Migratory Bird Subsistence Harvest in Alaska; Harvest Regulations for Migratory Birds in Alaska During the 2011 Season; Proposed rule. Document ID: FWS-R9-MB-2010-0082-0001

http://www.regulations.gov/#!documentDetail;D=FWS-R9-MB-2010-0082-0001

SUMMARY: The U.S. Fish and Wildlife Service proposes migratory bird subsistence harvest regulations in Alaska for the 2011 season. The proposed regulations would enable the continuation of customary and traditional subsistence uses of migratory birds in Alaska and prescribe regional information on when and where the harvesting of birds may occur. These proposed regulations were developed under a comanagement process involving the Service, the Alaska Department of Fish and Game, and Alaska Native representatives. The rulemaking is necessary because the regulations governing the subsistence harvest of migratory birds in Alaska are subject to annual review. This rulemaking proposes region-specific regulations that would go into effect on April 2, 2011, and expire on August 31, 2011.

Federal Register/Vol. 76/No. 60/March 29, 2011/17353-17360

Migratory Bird Subsistence Harvest in Alaska; Harvest Regulations for Migratory Birds in Alaska During the 2011 Season; Final rule. Document ID: FWS-R9-MB-2010-0082-0003 http://www.regulations.gov/#!documentDetail;D=FWS-R9-MB-2010-0082-0003

SUMMARY: The U.S. Fish and Wildlife Service establishes migratory bird subsistence harvest regulations in Alaska for the 2011 season. These regulations will enable the continuation of customary and traditional subsistence uses of migratory birds in Alaska and prescribe regional information on when and where the harvesting of birds may occur. These regulations were developed under a co-management process involving the Service, the Alaska Department of Fish and Game, and Alaska Native representatives. The rulemaking is necessary because the regulations governing the subsistence harvest of migratory birds in Alaska are subject to annual review. This rulemaking establishes region-specific regulations that go into effect on April 2, 2011, and expire on August 31, 2011.

EXAMPLES OF FEDERAL REGISTER DOCUMENTS PERTAINING TO THE ESTABLISHMENT OF ANNUAL REGULATIONS FOR HUNTING ON NATIONAL WILDLIFE REFUGES

A list of *Federal Register* documents pertaining to the establishment of annual regulations for hunting on national wildlife refuges is provided below, as are the internet links for accessing electronic copies of each document. Alternatively, each document can be downloaded directly from the following web address: http://www.gpoaccess.gov/fr/ or http://www.regulations.gov

If you would like a hard copy of any of these documents, please mail your request to the contact address listed at the front of this publication.

Federal Register/Vol. 76/No. 128/July 5, 2011/39185-39219

2011-2012 Refuge-Specific Hunting and Sport Fishing Regulations; Proposed Rule. Document ID: FWS-R9-NSR-2011-0038-0001

http://www.regulations.gov/#!documentDetail;D=FWS-R9-NSR-2011-0038-0001

SUMMARY: The Fish and Wildlife Service proposes to add one refuge to the list of areas open for hunting and/or sport fishing and increase the activities available at seven other refuges, along with pertinent refuge-specific regulations on other refuges that pertain to migratory game bird hunting, upland game hunting, big game hunting, and sport fishing for the 2011-2012 season.

Federal Register/Vol. 76/No. 175/September 9, 2011/56054-56090

2010-2011 Refuge-Specific Hunting and Sport Fishing Regulations; Final Rule. Document ID: FWS-R9-NSR-2011-0038-0257

http://www.regulations.gov/#!documentDetail;D=FWS-R9-NSR-2011-0038-0257

SUMMARY: The Fish and Wildlife Service adds one refuge to the list of areas open for hunting and/or sport fishing and increases the activities available at seven other refuges, along with pertinent refuge-specific regulations on other refuges that pertain to migratory game bird hunting, upland game hunting, big game hunting, and sport fishing for the 2011-2012 season.

Federal Register/Vol. 76/No. 186/September 26, 2011/59304

2011-2012 Refuge-Specific Hunting and Sport Fishing Regulations--Final rule; correction. Document ID: FWS-R9-NSR-2011-0038-0258

http://www.regulations.gov/#!documentDetail;D=FWS-R9-NSR-2011-0038-0258

SUMMARY:

We, the Fish and Wildlife Service, published a final rule in the Federal Register on September 9, 2011, revising our regulations concerning hunting and sport fishing programs at national wildlife refuges. Inadvertently we made some errors in our amendatory instructions. With this technical correction, we correct those errors.

EXAMPLES OF FEDERAL REGISTER DOCUMENTS PERTAINING TO MIGRATORY BIRD HUNTING REGULATIONS ON CERTAIN FEDERAL INDIAN RESERVATIONS AND CEDED LANDS, 2011–2012

A list of *Federal Register* documents pertaining to the establishment of annual regulations for hunting on certain Federal Indian reservations and ceded lands (2011-12) is provided below, as are the internet links for accessing electronic copies of each document. Alternatively, each document can be downloaded directly from the following web address: http://www.regulations.gov

If you would like a hard copy of any of these documents, please mail your request to the contact address listed at the front of this publication.

Federal Register/Vo. 76/No. 152/August 8, 2011/48694-48712

Migratory Bird Hunting; Proposed Migratory Bird Hunting Regulations on Certain Federal Indian Reservations and Ceded Lands for the 2011-12 Season; Proposed rule. Document ID: FWS-R9-MB-2011-0014-0314

http://www.regulations.gov/#!documentDetail;D=FWS-R9-MB-2011-0014-0314

SUMMARY: The U.S. Fish and Wildlife Service proposes special migratory bird hunting regulations for certain Tribes on Federal Indian reservations, off-reservation trust lands, and ceded lands for the 2011-12 migratory bird hunting season.

Federal Register/Vol. 76/No. 170/September 1, 2011/54676-54687

Migratory Bird Hunting; Migratory Bird Hunting Regulations on Certain Federal Indian Reservations and Ceded Lands for the 2011-12 Early Season; Final rule. Document ID: FWS-R9-MB-2011-0014-0352 http://www.regulations.gov/#!documentDetail;D=FWS-R9-MB-2011-0014-0352

SUMMARY: This rule prescribes special early-season migratory bird hunting regulations for certain Tribes on Federal Indian reservations, off-reservation trust lands, and ceded lands. This rule responds to Tribal requests for U.S. Fish and Wildlife Service recognition of Tribal authority to regulate hunting under established guidelines. This rule allows the establishment of season bag limits and, thus, harvest at levels compatible with populations and habitat conditions.

Federal Register/Vol. 76/No. 186/September 26, 2011/59298-59304

Migratory Bird Hunting; Migratory Bird Hunting Regulations on Certain Federal Indian Reservations and Ceded Lands for the 2011-12 Late Season; Final Rule; Document ID: FWS-R9-MB-2011-0014-0356 http://www.regulations.gov/#!documentDetail;D=FWS-R9-MB-2011-0014-0356

SUMMARY: This rule prescribes special late-season migratory bird hunting regulations for certain tribes on Federal Indian reservations, off-reservation trust lands, and ceded lands. This rule responds to tribal requests for U.S. Fish and Wildlife Service recognition of their authority to regulate hunting under established guidelines. This rule allows the establishment of season bag limits and, thus, harvest at levels compatible with populations and habitat conditions.