

**Adaptive Harvest Management (AHM) Task Force
International Association of Fish & Wildlife Agencies (IAFWA)**

Status Report #5—Final Recommendations Regarding Regulations

January 21, 2005

Task Force Background

The AHM Task Force was established in December 2002 by the president of the IAFWA. The mission of the AHM Task Force is to foster understanding and support for continued strategic development and implementation of AHM. Task Force members are:

Wayne MacCallum, Atlantic Flyway (MA Division of Fish & Wildlife)
Roy Grimes, Mississippi Flyway (KY Dept. Fish & Wildlife Resources)
John Cooper, Central Flyway (SD Game, Fish & Parks Department)
Don Childress, Pacific Flyway (MT Fish, Wildlife & Parks)
Ken Babcock (Ducks Unlimited)
Rollie Sparrowe (Wildlife Management Institute, retired)
Ken Williams (U.S.G.S. Cooperative Research Units)
Ralph Morgenweck (U.S. Fish and Wildlife Service)
Dave Case, facilitator (D. J. Case & Associates)

This is the 5th Status Report that has been prepared by the AHM Task Force. Further information about the mission of the AHM Task Force, as well as its Status Reports, can be found at <http://migratorybirds.fws.gov/mgmt/ahm/taskforce/taskforce.htm> and at <http://www.iafwa.org/publications.htm>

Development of Strategic Guidance for AHM

In its first Status Report (September 2003) and at the AHM Conference (January 2004), the Task Force presented the waterfowl management community with a number of policy questions and challenges concerning the future direction of AHM for regulating duck hunting. In Status Report #2 (February 2004), the Task Force posed some more specific questions to the Flyway Councils, with the intent of using the Councils' responses to help formulate a set of strategic alternatives for the future direction of AHM.

Status Report #3 (June 2004) detailed seven strategic recommendations for future development of AHM. The report was distributed to the Flyway Councils for their review and to seek their comments. Status Report #4 (September 2004) included a compilation of responses from the Flyway Councils to Status Report #3 and a request to the AHM Working Group for technical assessments (the AHM Working Group response is included in Appendix A).

This report includes the AHM Task Force final recommendations regarding the regulatory aspects of AHM.

AHM Task Force Recommendations

Recommendation A.

The Task Force believes that harvest and habitat management are inextricably linked, and the objectives of both AHM and the NAWMP should explicitly reflect that linkage (Runge et al. 2004; <http://migratorybirds.fws.gov/reports/ahm04/ReuniteNAPlanAHM.pdf>). However, the Task Force agrees with Runge et al. (2004) that population objectives of the NAWMP cannot be interpreted without the context provided by a specified harvest policy and by specification of “average” environmental conditions (e.g., precipitation). The Task Force therefore suggests that managers use the understanding of environmental and harvest dynamics of ducks derived from AHM and other research as a basis to help clarify the nature of the NAWMP population objectives. Certainly, the understanding of population dynamics will continue to evolve, and thus there needs to be an ongoing, joint AHM-NAWMP effort to periodically review population objectives. Ultimately, managers need to be clear about whether NAWMP population objectives represent the optimal level for maximizing harvest yield, a habitat carrying capacity, or something else.

The Task Force therefore recommends that the process articulated by Anderson et al. in their December 22, 2004 memo (Appendix B) be followed. Anderson et al. recommended the establishment of a joint AHM/NAWMP technical group to explore useful ways in which to interpret the NAWMP goals for planning and evaluation in both habitat and harvest management. A report (possibly including recommendations) regarding the implications should be submitted to the NAWMP Plan Committee and AHM Task Force and ultimately forwarded to the Flyway Councils and the SRC by January 2007.

In light of this recommended process, the AHM Task Force recommends the continued use of NAWMP goals in the AHM process.

Recommendation B.

The Task Force recommendations below are based on the following assumptions:

- Because hunting regulations provide imprecise control over harvest rates, attempting to implement too many precisely-aimed regulatory alternatives is impractical and most often results in the use of prescriptive extremes.
- Some species have a greater ability to sustain harvest than others. A less liberal alternative is a risk averse effort to provide additional protection for species with less harvest potential than mallards. This could help minimize the need for restrictions for some species within the regular duck season.
- The Task Force feels a component of the hunting public believes that regulations under AHM have been too liberal. Although the best available biological information does not suggest this is the case, this perception does serve to undermine support for the AHM process and management agencies and points to the need to take stakeholder concerns into consideration when dealing with waterfowl harvest.

The AHM Task Force recommends:

1. The development of only two regulatory alternatives (in addition to a closed alternative):
 - a. A “standard” alternative, which would:
 - i. Be approximately 15% less in season length from the current liberal season;
 - ii. A 1 duck reduction in bag limit from the current liberal season; and
 - iii. Include the current liberal season framework dates.
 - b. A “conservative” alternative, which would:
 - i. Be approximately 1/3 less in season length than the “standard;”
 - ii. A 1 duck and 1 mallard reduction in bag limit from the “standard;” and
 - iii. Include framework dates of the Saturday closest to October 1 to the Sunday nearest January 20.
2. The use of these regulatory alternatives (standard, conservative, and closed) would be accompanied by the “one-step constraint.” The one step constraint would largely eliminate the chance of moving from a standard to a closed season or vice versa in one year and would greatly reduce the frequency of closed season prescriptions.
3. The set of regulatory alternatives should be reviewed no more often than every five years, coincident with the current review schedule for zone and split-season configurations.
4. Regulatory alternatives should reflect Flyway differences, the preferences and skills of hunters, and law-enforcement capabilities. Flyway differences in packages should be periodically reviewed, but the Task Force believes this assessment is not a high priority at this time.

Recommendation C.

The Task Force supports the effort of the Service to define three breeding populations of mallards, with regulations in each Flyway governed by their respective derivation of birds. This has never been attempted before, and it is not clear that extant monitoring and assessment capabilities can support this degree of spatial resolution. Therefore, the Task Force believes it is necessary to demonstrate the feasibility of this approach before considering further spatial resolution in harvest management.

Recommendation D.

The Task Force recognizes that establishing general duck seasons based on the status of mallards will continue to present difficult challenges for managing the harvests of other stocks with lower harvest potential. Therefore, independent season lengths, bag limits, and framework dates should be considered only for those stocks with relatively low harvest potential (e.g., canvasbacks) or for those stocks with small or declining population sizes (e.g., pintails). However, such regulations should be practicable and effective in light of extant monitoring programs, administrative burden, regulatory complexity, the ability of hunters to shoot

selectively, and enforcement capabilities. The Task Force recommends that partially closed seasons be used only when absolutely necessary.

Recommendation E.

The AHM Task Force was briefed on the Central Flyway's Hunter's Choice experiment by the AHM Working Group. The Task Force did not take any formal action. However, the Task Force recognizes the value of an informed and systematic approach to the communications and human dimensions aspects of waterfowl management by undertaking the Hunter's Choice experiment.

Next Steps

This report includes the final recommendations regarding the regulatory aspects of AHM. However, the other major element of the Task Force agenda was to examine communication efforts needed to enhance the long-term success of AHM. Recommendations on communications will be included in the final report of the Task Force which will be submitted to the IAFWA Executive Committee at its meeting in March 2005.

Technical Assessments Relating to the Preliminary Recommendations of the AHM TASK Force

Prepared by the AHM Working Group
January 4, 2005

Executive Summary

- 1. Evaluate the implications of a closed season plus only two open-season (i.e., standard and restrictive) regulatory alternatives.** Differences in management performance and regulatory patterns attributable to six possible combinations of harvest rates for the “standard” and “restrictive” alternatives were minor compared to the variability due to the choice of management objective and model describing mallard population dynamics. Results suggest that the desirable consequences of eliminating the NAWMP goal from the management objective (e.g., more regulatory stability, higher frequency of “standard” seasons) would be accompanied by undesirable consequences (e.g., lower breeding-population size, smaller fall flight) that could not be offset even with what would be perceived as an extremely conservative “standard” alternative.
- 2. Construct statistical models that can predict mallard harvest-rate probability distributions as a function of Flyway-specific hunting regulations.** The harvest process is being modeled as a function of harvest-area specific band recovery and reporting rates, and the movement rates of birds from discrete breeding populations to harvest areas. Preliminary results suggest that the analytical framework can provide the desired parameter estimates and the initial estimates seem reasonable. However, there is substantial technical work yet to be accomplished before we can predict harvest rates for the three mallard populations as a function of flyway-specific hunting regulations.
- 3. To the extent possible, evaluate the potential need for independent hunting regulations on species other than mallards when the basic duck hunting season is predicated on the status of mallards and two open-season regulatory alternatives.** Given a harvest-management objective for mallards, it was generally not possible to discern any meaningful effect of varying the mean harvest rates for the “restrictive” and “standard” regulatory alternatives on the abundance of other duck species. Conditioned on our particular choice of harvest rates for the “restrictive” and “standard” regulatory alternatives (and on current model weights for mid-continent mallards), results suggest that independent regulatory strategies may be useful for northern pintails, scaup, and possibly American wigeon *if* attainment of their respective NAWMP population goals under current habitat conditions is at least in part an objective of harvest management. An unrelated analysis suggests that independent harvest regulations for black ducks have produced harvest rates that are near optimal given the objectives of maximizing harvest and attaining the NAWMP population goal for black ducks.
- 4. Assess progress on incorporating western mallards into the AHM protocol for establishing Flyway framework regulations.** The development of AHM for western mallards continues to present technical challenges that make implementation much more difficult than with either mid-continent or eastern mallards. In particular, we remain concerned about our ability to reliably determine changes in the population size of western mallards based on a collection of surveys conducted independently by Pacific Flyway States and the Province of British Columbia. In light of this and other challenges, we believe it will not be possible to implement AHM for western mallards for the 2005 hunting season.
- 5. Review a preliminary study plan prepared by the Central Flyway Technical Committee to assess the effectiveness of the Hunters’ Choice Bag Limit System.** The AHM Working Group reviewed an outline of the approach the Flyway plans to use to evaluate a Hunters’ Choice Bag Limit System. The proposed evaluation focuses on comparing proposed Hunters’ Choice (HC) regulations to Season-Within-A-Season (SWAS) regulations currently being used to manage harvests of pintails and canvasbacks. Although the AHM Working Group gave its conceptual support for conducting an evaluation of HC regulations, numerous issues concerning study design and analysis must still be addressed.

Technical Assessments Relating to the Preliminary Recommendations of the AHM TASK Force

**Prepared by the AHM Working Group
January 4, 2005**

In September 2004, the AHM Task Force requested assistance from the AHM Working Group in conducting technical analyses on five issues to help the Task Force develop recommendations for future application of AHM. This summary report was prepared pursuant to that request. The five specific tasks and the major findings of the AHM Working Group are described below. Additional methodological details and results will be provided in the 2004 annual report from the AHM Working Group.

1. Evaluate the implications of a closed season plus only two open-season (i.e., standard and restrictive) regulatory alternatives.

We focused on two questions concerning this task: (a) how does selection of target (or mean) harvest rates for “standard” and “restrictive” regulatory alternatives affect expected management characteristics for mid-continent mallards; and (b) how important is this selection relative to management objectives and model weights. We examined three possible mean harvest rates for adult males under a “standard” regulatory alternative: 0.13, which is the mean under the current liberal alternative; 0.11, which is the mean under the current moderate alternative; and 0.09, which is intermediate between the means for the current restrictive and moderate alternatives. For the “restrictive” alternative, we examined two possible rates: 0.06, which is the mean under the current restrictive alternative; and 0.04, which is similar to the mean under the very-restrictive alternative (last considered in 2002). Thus, there were six possible combinations of mean harvest rates to be examined for the “standard” and “restrictive” alternatives. For each of these combinations, we computed an optimal regulatory strategy under two management objectives (i.e., objective functions), with five mallard population models (60 optimal strategies in all). The two alternative management objectives were: (a) maximize long-term cumulative harvest; and (b) maximize long-term cumulative harvest, subject to a proportional devaluation of harvest whenever the mallard population falls below the goal of the North American Waterfowl Management Plan (NAWMP). The five population models included the four extant models of population dynamics, plus an “average” model based on the 2004 model weights (U.S. Fish and Wildlife Service. 2004. Adaptive harvest management: 2004 hunting season. U.S. Dept. Interior, Washington, D.C. 39pp. <http://migratorybirds.fws.gov>). We then simulated application of these optimal strategies and computed mean size of the breeding population, harvest, and fall flight, the frequency of closed, “restrictive,” and “standard” seasons, and the frequency of annual regulatory changes.

Generally, differences in management performance and regulatory patterns attributable to the six possible combinations of harvest rates for the “standard” and “restrictive” alternatives were minor compared to the variability due to the choice of management objective and model describing mallard population dynamics. Given a management objective and model, the choice of mean harvest rate for the “restrictive” alternative made almost no difference in any measure of management performance. The expected frequency of “restrictive” seasons was low in almost all scenarios, and in some cases was associated with a high frequency of annual changes from a “standard” to a closed season (and vice-versa). The expected frequency of “standard” and closed seasons was more sensitive to the choice of mean harvest rate under the “standard” alternative, but under current model weights, the choice of management objective had as

much or more effect on expected management characteristics than the choice of harvest rate for the “standard” alternative. Results suggest that the desirable consequences of eliminating the NAWMP goal from the management objective (e.g., more regulatory stability, higher frequency of “standard” seasons; Fig. 1) would be accompanied by undesirable consequences (e.g., lower breeding-population size, smaller fall flight; Fig. 2) that could not be offset even with what would be perceived as an extremely conservative “standard” alternative.

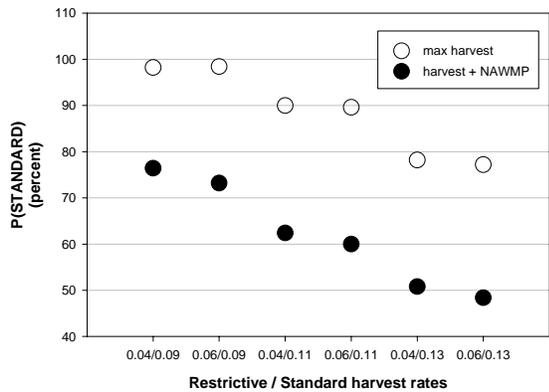


Fig. 2. Expected frequency of the "standard" regulatory alternative under six different combinations of mean harvest rate.

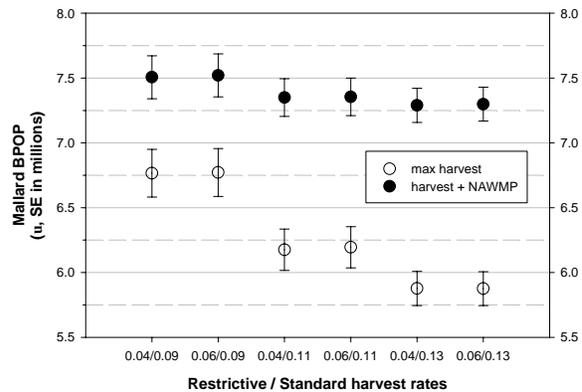


Fig. 1. Average mallard breeding populations projected under six different combinations of mean harvest rates.

2. Construct statistical models that can predict mallard harvest-rate probability distributions as a function of Flyway-specific hunting regulations.

We developed methods to model population-specific harvest rates for mallards as a function of Flyway-specific hunting regulations. Our preliminary analysis was based on a modeling framework developed for black duck AHM by Conroy et al. (2005. Modeling of regional harvest rates in relation to harvest regulations using band-recovery data and Markov Chain - Monte Carlo methods. *J. Wildl. Manage.* 69:*In press*). Under this framework, the harvest process is modeled as a function of harvest-area specific recovery and band-reporting rates, and the movement rates of birds from discrete source (breeding) populations to harvest areas. The geographical scale of our initial assessment focused on the current delineations of the three mallard breeding populations (Eastern, Midcontinent, Western) and five harvest areas (four Flyways and Canada). We used Bayesian methods to fit a range of initial models with different parameterizations, which differed in how movement or recovery rates were allowed to vary over time. For the purposes of this exploratory work, we did not incorporate covariate information (e.g., season length, bag limits, etc.) that we believe may be informative in explaining the observed variation in mallard harvest rates.

Our preliminary results suggest that the analytical framework can provide the desired parameter estimates and the initial estimates seem reasonable given some simplistic assumptions regarding the use of fixed reporting rates. However, there is substantial technical work that must be accomplished before we are able to model and predict harvest rates for the three mallard populations as a function of flyway-specific hunting regulations and population-specific population dynamics. Much of this work will focus on methods to model temporal and spatial variation in reporting rates, determining a reliable set of predictors (e.g., season length), and evaluating the scale for post-stratification of band recoveries in relation to extant

population models and optimization protocols.

3. To the extent possible, evaluate the potential need for independent hunting regulations on species other than mallards when the basic duck hunting season is predicated on the status of mallards and two open-season regulatory alternatives.

We examined the effects of “restrictive” and “standard” regulatory alternatives, whose use was optimized for mid-continent mallards, on nine species of ducks. The nine species were gadwall, American wigeon, green-winged teal, blue-winged teal, northern shoveler, northern pintail, redhead, canvasback, and scaup (lesser and greater combined). The abundance of these species was indexed by their respective breeding-population estimates from the traditional mid-continent survey area. For this assessment, we relied on a population model that predicts growth rate as a function of duck abundance, the number of May ponds in Canada, and the harvest rates of mid-continent mallards (Johnson, F. A. 2003. Population dynamics of ducks other than mallards in mid-continent North America. U.S. Fish and Wildl. Serv., unpub. rep., 15pp.). We believe harvest rates of mallards serve as a useful predictor of harvest pressure on other species because harvest rates of mallards and of other species are highly correlated over the period of record. We predicted abundance of the nine duck species relative to their respective NAWMP goals under each of the six combinations of mean harvest rates for the “restrictive” and “standard” regulatory alternatives, under each of the two mallard management objectives described previously, and using the optimal strategy associated with the current model weights for mid-continent mallards (108 scenarios).

Given a harvest-management objective for mallards, it was generally not possible to discern any meaningful effect of varying the mean harvest rates for the “restrictive” and “standard” regulatory alternatives on the abundance of other duck species. The choice of management objective for mallards (i.e., whether to include the NAWMP goal) was a much more important determinant of duck population size, especially with higher harvest rates associated with the “restrictive” and “standard” regulatory alternatives. The 90th percentiles for the abundance of northern pintails and scaup never included their respective NAWMP goals under any combination of mean harvest rates or management objectives. The abundance of American wigeon only rarely exceeded its NAWMP goal, and only under a harvest-management objective that included the mallard NAWMP goal. The median abundance of blue-winged teal, redhead, and canvasback tended to be close to their respective NAWMP goals under all scenarios. The median abundance of green-winged teal, northern shoveler, and gadwall were above their respective NAWMP goals under all scenarios.

Conditioned on our particular choice of harvest rates for the “restrictive” and “standard” regulatory alternatives, and on current model weights for mid-continent mallards, our results suggest that independent regulatory strategies may be useful for northern pintails, scaup, and possibly American wigeon *if* attainment of their respective NAWMP goals is to be accomplished at least in part through harvest management. It is worth noting, however, that our results suggest the abundance of pintails would still fall far short of the NAWMP goal (-33%) even in the absence of harvest.

We also examined possible regulatory strategies for black ducks based on recent population models developed by Conroy et al. (2002. Identification and synthetic modeling of factors affecting American black duck populations. Wildlife Monographs 150. 64pp.). Over the period of record, independent harvest regulations for black ducks have produced harvest rates that are near optimal given the objectives of maximizing harvest and attaining the NAWMP population goal for black ducks. However, elimination of the NAWMP goal as part of the harvest management objective for black ducks would apparently allow for higher harvest rates, thereby reducing to some (unknown) extent the necessity for a regulatory strategy

independent of mallards.

4. Assess progress on incorporating western mallards into the AHM protocol for establishing Flyway framework regulations.

The U.S. Fish & Wildlife Service and the AHM Working Group continue to place a high priority on this effort, and believe it is an essential element of a more comprehensive and effective AHM framework. Most recently, efforts have focused on defining the geographic bounds of a western mallard population and on understanding how the abundance of these mallards varies over time. Drs. Mark Herzog and Jim Sedinger recently addressed these issues through a cooperative agreement among the Pacific Flyway, the State of Oregon, the Service, and the University of Nevada – Reno.

The development of AHM for western mallards continues to present technical challenges that make implementation much more difficult than with either mid-continent or eastern mallards. Specifically, we remain concerned about our ability to reliably determine changes in the population size of western mallards based on a collection of surveys conducted independently by Pacific Flyway States and the Province of British Columbia. These surveys tend to vary in design and intensity, and in some cases lack measures of precision (i.e., sampling error). We still consider the methods for estimating mallard abundance in British Columbia to be in the development and evaluation phase, and there are as yet unanswered questions about how mallard abundance will be determined there on an operational basis. Another technical challenge is how to estimate a reliable, annual measure of reproductive success. Submission of mallard wings by hunters typically provides a good measure of reproductive success, but application of this approach for western mallards is complicated by the mixing of mid-continent and western mallards in the Pacific Flyway harvest.

Extensive reviews of the research by Drs. Herzog and Sedinger suggest that further technical work is required on these monitoring issues. In light of these challenges, we believe that it will not be possible to hold to the original timeline, in which implementation of AHM for western mallards was tentatively scheduled for the 2005 hunting season.

5. Review a preliminary study plan prepared by the Central Flyway Technical Committee to assess the effectiveness of the Hunters' Choice Bag Limit System.

Central Flyway representatives on the AHM Working Group presented an outline of the approach the flyway plans to use to evaluate a Hunters' Choice Bag Limit System. The evaluation will focus on comparing proposed Hunters' Choice (HC) regulations to Season-Within-A-Season (SWAS) regulations currently being used to manage harvests of pintails and canvasbacks. The hypotheses of primary interest are: (1) annual harvests of pintails and canvasbacks in the Central Flyway are no greater under HC regulations than under SWAS regulations, and (2) duck hunters in the Central Flyway will prefer HC regulations over SWAS regulations. The Central Flyway proposed a Before-After-Control-Impact study design. Under this design, all Central Flyway states will use SWAS regulations for pintails and canvasbacks during the 2005-2006 hunting seasons (provided open seasons on these species are permitted), in order to gain additional experience with SWAS regulations. An experimental period would begin with the 2006-2007 season, in which half of Central Flyway states will be randomly assigned to HC regulations and the other half retain SWAS regulations to provide a control group. The experiment will continue for at least three hunting seasons. Annual harvest estimates derived from federal harvest and parts collection surveys will be used to compare harvests between HC and SWAS regulations. To examine hunter preferences between HC and SWAS regulations, mail surveys will be conducted using a standardized format and sampling approach throughout the flyway. The Central Flyway will work with

Human Dimensions experts to design and analyze these surveys. An effective internal and external communications strategy will be essential to the success of this experimental evaluation, and the flyway will also work with experts to develop and implement a flyway-wide communications strategy. Annual updates will be provided to the Service, flyway councils, and the AHM Working Group. An evaluation report will be prepared following the end of the experimental period.

The AHM Working Group gave conceptual support for conducting an evaluation of HC regulations in the Central Flyway. Numerous technical issues on study design and analysis must still be resolved, and the Working Group provided guidance on these issues. A more detailed study plan will be completed by the Central Flyway Waterfowl Technical Committee at their working meeting, December 9-14, 2004. A subgroup of the AHM Working Group and several other scientists were identified to provide peer review for the draft study plan. After review, the revised plan will be provided to the entire Working Group and the chairs of each flyway technical committee for additional review. A final study proposal will be forwarded by the Central Flyway Council to the Service Regulations Committee after the March Central Flyway Council meeting. A brief update on the status of the study proposal will be provided to the Task Force at its meeting in January.

Appendix B

MEMORANDUM

TO: NAWMP CO-CHAIRS, IAFWA AHM TASK FORCE
FROM: MIKE ANDERSON, FRED JOHNSON, MARK KONEFF, SETH MOTT, ERIC REED AND MIKE RUNGE
SUBJECT: HARMONIZING HABITAT AND HARVEST MANAGEMENT
DATE: DECEMBER 22, 2004

Thoughts about a Process for Clarifying NAWMP Goals and Resolving Their Use in Harvest Management

Waterfowl managers should act soon to clarify NAWMP population goals and resolve their use in harvest management. We have the opportunity now to build on the debates stimulated by recommendations from the IAFWA AHM Task Force and the Runge *et al.* discussion paper on "reuniting" waterfowl management. We need to bring together the two main streams of waterfowl management to resolve the putative conflict between NAWMP and AHM, while recognizing that the Plan Committee "owns" the NAWMP goals and the harvest management agencies "own" oversight of AHM and other harvest policies.

We, the *ad hoc* group of NAWMP Science Support Team (NSST) and Adaptive Harvest Management Working Group (AHMWG) members that have been working on this problem so far have agreed to develop a brief options paper in early 2005 as requested by the Plan Committee. Soon, however, this work should be handed off for further development to a larger and more formally constituted task group on NAWMP goals. We recommend tackling this by something like the process outlined schematically in Figure (1).

Specifically, we urge that the Plan Committee and the IAFWA AHM Task Force sanction and appoint a time-limited Joint Task Group (JTG, a provisional name), consisting of NSST and AHM Working Group members, whose charge it will be to explore more fully the options presented by our *ad hoc* group, and perhaps other options of their own creation, and recommend a preferred alternative solution. By June 2005, the JTG would solicit from their respective full technical committees (NSST and AHMWG) peer review of a preferred solution. Following that technical review, those ideas would be reconciled and reported by the JTG to the Plan Committee, the IAFWA Task Force and the federal wildlife services responsible for waterfowl population management.

When provisionally agreed upon by the Plan Committee, the Task Force and the federal oversight agencies (CWS and USFWS), the proposed resolution then would be vetted with waterfowl management stakeholders from both the harvest and habitat arenas (e.g., the Joint Ventures, Flyway Councils) during the summer of 2005. This schedule presumes that Plan Committee members and harvest managers converge quickly around a proposed solution; if there are important differences to resolve, the broader consultation might be delayed somewhat.

Following this stakeholder review, the JTG would work with and between the Plan Committee and the harvest management community to reconcile stakeholder input and recommend a final course of action by October, 2005. The Plan committee would then finalize the clarification of NAWMP goals, and the harvest management authorities would reconcile the use of NAMWP goals in AHM, by the end of November.

This ambitious timeline is important because of the need for clarification of Plan goals early in the nascent NAWMP Continental Progress Assessment, the desirability of reconciling use of Plan goals in AHM before the 2006 regulatory cycle, and the desire of the IAFWA Task Force to complete its work early in 2005.

The JTG would be disbanded following completion of this work but the NSST and the AHM Working Group should ensure continuing technical communication. Some minimal overlap of members (2-3?) going forward would be advisable.

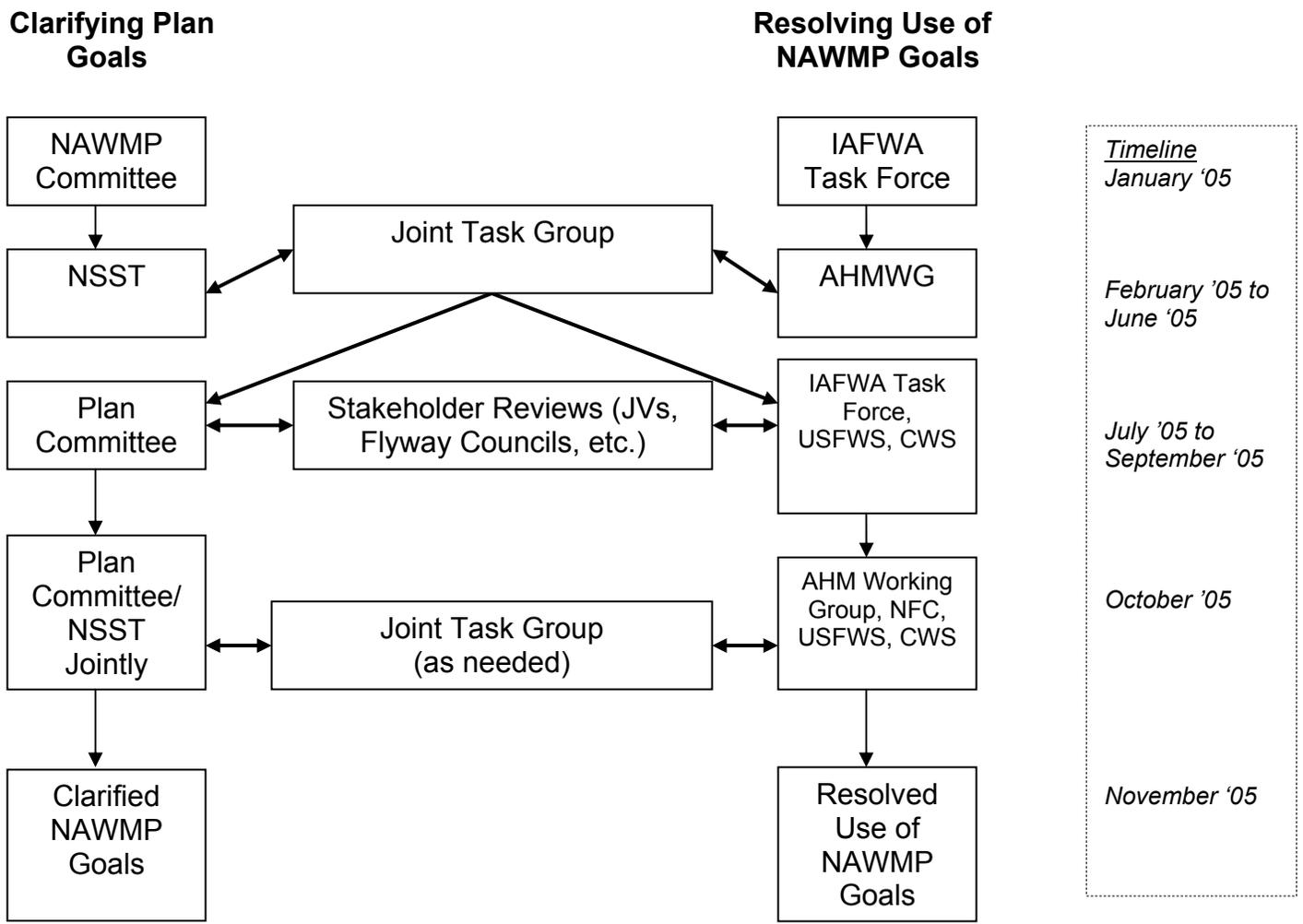


Figure 1. A schematic representation of a dual-track coordinated process for clarifying NAWMP goals and the use of those goals in adaptive harvest management.