

Contents: Implementing the 2012 NAWMP Revision

The listing below outlines the background materials for use in preparation for discussions by the Interim Integration Committee and the Update Steering Committee in Minneapolis during 13-14 July 2016 and later at the Plan Committee meeting in August. Included is a general synthesis (pp 1-4) providing context, a brief update of work in progress, and desired outcomes for the Future of Waterfowl Management Workshop II and the 2018 Update. More detail is included in “Unfinished Business and Desired Outcomes,” wherein status updates and additional progress expected / needed over the next 12-15 months towards NAWMP implementation is outlined (pp 5-11). Finally, greater explanation and background of the work towards each of the seven recommendations from the 2012 Revision and Action Plan, work yet to be accomplished, and key management / policy actions are offered in appended narratives (Appendices A-G).



Implementing the 2012 NAWMP Revision: A Synthesis of Bottom Lines and Time Lines..... 1

Implementing the 2012 NAWMP Revision: Unfinished Business and Desired Outcomes..... 5

Appendix A	i
Recommendation: Develop, revise or reaffirm NAWMP objectives.....	i
Appendix B	v
Development of a decision support tool to identify landscapes.....	v
Appendix C	vi
Recommendation: Adapt harvest management strategies.....	vi
Appendix D.....	ix
Status of HDWG and PET: Engaging People.....	ix
Appendix E.....	x
Building Adaptive Capacity for NAWMP	x
Appendix F.....	xiv
Recommendation: Integrate waterfowl management.....	xiv
Appendix G.....	xvi
Continuing to Create a Responsive NAWMP Culture	xvi

Implementing the 2012 NAWMP Revision: A Synthesis of Bottom Lines and Time Lines

The waterfowl management community has continually met the challenge of relevance throughout the life of the North American Waterfowl Management Plan (Plan). The nature of relevance, however, is ever-changing given the dynamic status of waterfowl populations, threats to habitat, emerging science, human population demographics, land use policy, and socio-economic trends.

The significance of waterfowl conservation was unquestionable at the Plan’s inception in the mid-1980s. Populations of many waterfowl species were at historically low levels, and land use trends and government policies provided little optimism for recovery. The subtitle of the 1986 plan, “A Strategy for

Cooperation” reflected the need for collaboration throughout the annual cycle of migratory waterfowl. Subsequent Plan updates chart the evolution of management issues and strategic approach to North American waterfowl conservation. “Expanding the Commitment” (1994) renewed the continental approach to waterfowl management through formal addition of Mexico as a planning partner and significantly increased the scale and magnitude conservation goals as Joint Ventures (JV) emerged with focused regional plans. “Expanding the Vision” (1998) emphasized conservation of landscapes for all wildlife in addition to waterfowl. The formula developed for waterfowl – strong biologically-based conservation across landscapes through innovative partnerships - was expanded beyond ducks and geese. “Strengthening the Biological Foundation” (2004) presented a new 15-year planning horizon and reaffirmed the relevance of a strong scientific base underpinning the Plan. “People Conserving Waterfowl and Wetlands” (2012) built on the previous 25 years of the Plan, revisiting for the first time, fundamental goals for waterfowl conservation. Emerging from extensive stakeholder input, was recognition that the Plan can succeed only if conservation is relevant to broader societal issues.

The context of waterfowl conservation continues to change, often at a pace greater than our capacity to adapt. A growing and redistributed human population, technological advances, uncertain political environment, and budget limitations add to the dramatic changes in the ecological landscapes directly affecting waterfowl and relevance of waterfowl conservation. To be relevant in the future, traditional emphasis on waterfowl populations and habitat management must be considered through the lens of waterfowl hunters, millions of birders, landowners, and the broader public. Their emotional or pragmatic ties to waterfowl populations and habitat will determine the relevance of waterfowl conservation. Connecting people’s values with goals for waterfowl populations and habitat, however, has proven to be easier planned than actually accomplished. Actions designed to affect one goal may also influence others; thus, an integrated system of waterfowl management requires confronting the trade-offs and complexity introduced by managing for multiple objectives. This particular aspect represents a primary challenge to implementing the 2012 Plan Revision. Regardless, progress on Plan recommendations and key actions has been significant despite the greater complexity, capacity limitations, and perceived lack of urgency in some instances.

The vision of the 2012 NAWMP, “People Conserving Waterfowl and Wetlands,” continues to be a work in progress. Continuing to implement that vision, assessing progress, and refocusing strategies will be the objectives for preparing the 2018 Update.

Next steps require clarifying the efforts of the Interim Integration Committee (IIC) and the Update Steering Committee (USC) regarding:

1. Which key actions from the 2012 Revision and Action Plan can we expect to address before the Future of Waterfowl Management Workshop II (FoW2, September 2017)?
2. What should be included as part of the FoW2 agenda?
3. What should be advanced as part of the 2018 Update?

In the paragraphs that follow and the documents appended, contemporary progress and future challenges are presented as a basis for continuing discussions about how to sustain waterfowl conservation. The framework presented is based on seven recommendations and associated key actions from the 2012 Plan Revision and Action Plan. Consider the three questions above as you prepare to discuss the progress and desired outcomes of the recommendations that follow.

Recommendation: Develop, revise or reaffirm NAWMP objectives so that all facets of North American waterfowl management share a common benchmark. (see Appendix A.)

The Plan Committee approved revised objectives in 2014. Work is in progress to “step-down” these objectives to regional scales by the JVs (NSST). Similarly, supporter objectives established at national levels have not been considered at smaller scales, and habitat necessary to support

both populations and users has yet to be widely addressed despite efforts among some Joint Ventures.

Desired outcome: Information from stakeholder surveys and new biological insights are used to reassess Plan objectives based on a schedule and process for periodic review. Initial perspectives will be gained by the FoW2; however, most progress likely will be through the 2018 Update.

Recommendation: Focus resources on important landscapes that have the greatest influence on waterfowl populations and those who hunt and view waterfowl.

A Priority Landscapes Committee (NSST) is developing a scalable decision support tool to assist in identification of landscape priorities. Additional GIS support is needed to lead the collection, development, analysis, and representation of spatial data. A post-doctoral researcher will advance a formal framework for high priority waterfowl management decisions (a position description and announcement pending). (see Appendix B)

Desired outcome: A consistent approach (common “starting point”) across JVs for defining landscape priorities (attributes related to waterfowl populations, supporters, threats, and opportunities – beta version by FoW2). Formal decision support frameworks that demonstrate the application of various weighted attributes in the context of highest priority waterfowl conservation decisions (initial work by FoW2 and completed during 2018 Update period).

Recommendation: Adapt harvest management strategies to support attainment of NAWMP objectives. (see Appendix C)

Long-standing uncertainty and disagreement about harvest management objectives and the theme of “coherence” introduced by the Joint Task Group are in review by the Flyway Councils and USFWS. The role of the Plan objective for mallards (Mid-continent; potential recommendation to USFWS in 2018), consideration of multiple species (Atlantic Flyway; potential recommendation to USFWS in June 2017), the inclusion of “people” goals, and efforts to recruit / retain hunters are being explored.

Desired outcome: A consensus on how harvest management and NAWMP duck population levels are related. A framework (scalable?) for incorporating considerations of hunter participation objectives in harvest management on an on-going basis.

Recommendation: Establish a Human Dimensions Working Group to support development of objectives for people and ensure that those actions are informed by science. (see Appendix D)

The HDWG was formed (2012-13) and has coordinated development of surveys of hunters, viewers, and the general public that will be conducted during 2016 with initial results by spring, 2017. Resulting information will be used to inform harvest management and public engagement efforts.

Desired outcome: Routinely and effectively integrate social science into management decisions about population and habitat at relevant and actionable scales. Fully utilize emerging HD information during the process of re-evaluating NAWMP goals and objectives (initially by FoW2; however, central to the 2018 Update).

Recommendation: Build support for waterfowl conservation by reconnecting people with nature through waterfowl, and by highlighting the environmental benefits associated with waterfowl habitat conservation. (see Appendix D)

Initial efforts to establish task groups for engaging waterfowl hunters, viewers, and landowners need to be formalized. Overall strategic direction has been developed, and work plans are works in progress. “Petri-dish” engagement experiments have been implemented by various joint

ventures and should be rigorously evaluated and expanded as insights are gained. Emerging experience needs to be well communicated among JVs.

Desired outcome: Social science (HDWG) is aligned with engagement initiatives (PET) to ensure active implementation, coordination, and evaluation of public engagement efforts (initial insights gained by FoW2; however, implementation as a “way of doing business” will be a gradual process extending through 2018 and beyond).

Recommendation: Increase adaptive capacity so structured learning expands as part of the culture of waterfowl management and program effectiveness increases. (see Appendix E)

Initial efforts to identify key waterfowl management decisions were initiated; however, the work is incomplete and should be renewed (IIC and invited expertise). The intent would be to more fully develop a minimal set of multi-criteria decision frameworks that usefully and pragmatically describe the primary linkages among populations, habitat, and people. Necessary monitoring and assessment to inform these decisions over time also need to be identified.

Desired outcome: Decision makers actively consider and promote an adaptive framework for implementing waterfowl management in the 2018 Update. Elements of adaptive management are prominent in the agenda, presentation, and breakouts at the FoW2 Workshop.

Recommendation: Integrate waterfowl management to ensure programs are complementary, inform resource investments, and allow managers to understand and weigh trade-offs among potential actions. (see Appendix F)

“Integration” across the three goals of the Plan has proven to be more complex and demanding than initially envisioned. In addition to efforts to define key linkages discussed above, a related review of institutional arrangements will need to be undertaken.

Desired outcome: Institutional arrangements that perpetuate the gains made towards integration of waterfowl management that include a revitalized, strong linkage between technical functions and the NAWMP Committee and other policy levels (potentially amended or alternative structures drafted by IIC in collaboration with USC, explored during the FoW2, and proposed through the 2018 Update). Ultimately and gradually, development of a responsive culture within the waterfowl management enterprise (see Appendix G).

Additional background, updates, and perspectives are provided in the appended files. An unabridged version of this synthesis and more detail in individual narratives related most of the seven recommendations are included (pages 5-11).

Implementing the 2012 NAWMP Revision: Unfinished Business and Desired Outcomes

The 2012 Revision of the North American Waterfowl Management Plan (Plan) emphasized the emotional or pragmatic ties to waterfowl populations and habitat that was necessary to maintain or increase the relevance of the plan. At policy levels, increased relevance will emerge as long-standing management issues are developed in an adaptive framework that includes a clear description of the trade-offs and makes a compelling case for adequate capacity for monitoring and evaluation. Some of the more obvious examples involve seeking a balance related to:

1. Harvest management, where the role of harvest in ensuring population viability versus hunter recruitment, retention, and reactivation remains as an issue of uncertainty.
2. Investment in habitat priorities presents apparent trade-offs among habitat for birds, habitat for peoples' enjoyment, and landscapes for peoples' benefit (EGS).
3. Investment in policy support that involves retaining traditional support (i.e., hunters) versus recruiting new waterfowl conservation supporters.

More broadly, traditional emphasis on waterfowl populations and habitat management must be considered through the lens of waterfowl hunters, millions of birders, landowners, and the broader public. Connecting people's values with goals for waterfowl populations and habitat, however, has proven to be easier planned than actually accomplished. Regardless, progress on Plan recommendations and key actions has been significant despite the greater complexity, capacity limitations, and perceived lack of urgency in some instances.

In the outline that follows and the more complete narratives appended, contemporary progress and future challenges are presented as a basis for continuing discussions about how to sustain waterfowl management. This summary is based on seven recommendations and associated key actions from the 2012 Plan Revision and Action Plan. It addresses work in progress, "unfinished business," and desired outcomes in response to the seven recommendations. Consider the following three questions as you prepare to discuss the progress and desired outcomes of the 2012 Revision recommendations:

1. Which key actions from the 2012 Revision and Action Plan can we expect to address before the Future of Waterfowl Management Workshop II (FoW2, September 2017)?
2. What should be included as part of the FoW2 agenda?
3. What should be advanced as part of the 2018 Update?
4. Also, consider how progress on each of the recommendations can serve to demonstrate and add to the relevance of waterfowl conservation.

Recommendation: Develop, revise or reaffirm NAWMP objectives so that all facets of North American waterfowl management share a common benchmark. (see Appendix A)

Unfinished business: The IIC worked with the waterfowl management community to produce revised NAWMP objectives which the Plan Committee approved in September 2014; work remaining includes:

- Development of a process by which JVs can "step-down" continental objectives to JV / regional scales (based on a reanalysis of a process developed by M. Koneff). This should not be interpreted as a mandate for various JV or states; instead the process provides a common "starting point"

among JVs for planning based on more contemporary waterfowl population data (USFWS, NSST).

- Explore whether continental objectives for some users (e.g., hunters) can be “stepped-down” to finer scales / rolled up to continental objectives (possibly part of NSST Landscapes Priority Committee; also see the HDWG recommendations ... ultimately, using information about stakeholders’ values to inform population objectives and adjusting objectives to meet current and future demand).
- Revise objectives for species / populations outside of surveyed areas (species joint ventures, flyway species committees). Criteria necessary for model-based objectives include:
 - well understood population demographics
 - sufficient monitoring programs
 - consistent with habitat and public use goals
 - for less-understood species, use conceptual models and alternative approaches
- Resolve questions about whether long-term population averages are realistic as used in establishing NAWMP objectives (e.g., scaup) in light of the impact of “unrealistic spikes” in year-specific estimates for some species (IIC, collaborating with species experts)
- Develop specific attributes related to landowners (and land managers / lessees) and private lands conservation programs (e.g., numbers of landowners vs. acreage in conservation programs).

Desired outcome:

- Use information from stakeholder surveys to reassess NAWMP objectives (Initial perspectives will be gained by the FoW2; however, most progress likely will be through the 2018 Update).
- Establish a schedule and process for periodic objectives updates (via 2018 Update) including periodic / repeated surveys of stakeholders to inform amended objectives.
 - Frequent enough to apply emerging biological and social information
 - Long enough interval that assures consideration of experience with revised objectives and in the context of system change
 - Establish criteria to gauge the need for and nature of revised objectives

Recommendation: Focus resources on important landscapes that have the greatest influence on waterfowl populations and those who hunt and view waterfowl. (see Appendix B)

Unfinished business: An NSST committee coordinated development of a map that was appended to the 2012 Revision (pg. 42). Concern about consistency in approaches across joint ventures, variability in the quality of data used, and lack of HD information incorporated into the process led to a recommendation to develop a scalable decision support tool to identify landscape priorities.

- A Priority Landscapes Committee (NSST) is developing a scalable decision support tool to assist in identification of landscape priorities. Initial work

entails development of spatial landscape attributes related to waterfowl populations, users, threats, and opportunities (beta version by FoW2).

- We need to be able to access GIS expertise to lead the collection, development, analysis, and representation of spatial data. Increased coordination with HDWG will be necessary to ensure social attributes are adequately considered.
- Dr. Jim Lyons (USGS) is assisting with development of a decision framework. A post-doc researcher needs to be hired to advance formal decision framework(s) related to high priority waterfowl management decisions (a job description has been developed).

Desired outcome:

- Spatial depictions of priority landscapes for waterfowl habitat conservation at multiple scales and multiple objectives providing a consistent approach (common “starting point”) across joint ventures for defining landscape priorities (initial maps of individual attributes have been developed, others to be developed by FoW2 as well as supporting documentation).
- Formal decision support frameworks that demonstrate the application of various weighted attributes in the context of highest priority waterfowl conservation decisions (initial work by FoW2 and completed during 2018 Update period).

Recommendation: Adapt harvest management strategies to support attainment of NAWMP objectives. (see Appendix C)

Unfinished business: Long-standing uncertainty and disagreement about harvest management objectives was acknowledged in the 2012 Revision. The Joint Task Group (JTG) offered a framework for linking objectives for habitat and harvest; however, inclusion of a “people” goal in the Revision presented additional complexity (although also the context for much of the historical debate).

- There has been discomfort with a harvest objective of maximizing long-term cumulative harvest since the AHM approach was initiated. The “coherence” of a “right-shoulder” yield curve approach, while strongly promoted, continues to raise questions about interpretation and translation from harvest management to NAWMP objectives (e.g., is an equilibrium population size calculated from a yield curve appropriate to use as a NAWMP objective?; how is the K determined from a yield curve translated and applied to NAWMP habitat objectives and programs?).
- The Central and Mississippi flyways and USFWS are updating mid-continent mallard AHM components, including making technical updates to the model set, reconsideration of objectives and regulatory packages, and an assessment of metrics and monitoring needs for tracking hunter participation (recommendation planned for 2018).
- Complete work on multi-stock harvest management (Atlantic Flyway; for review during 2016/17; possible recommendation in 2017) and technical modifications to AHM in Pacific Flyway.

- Consider the impact of the NAWMP objective as a constraint to the harvest management objective (this would be in the context of revisiting overall harvest management objectives). Depending on these outcomes, consider revisiting the JTG framework in the context of the 2012 Revision goals and emerging information from stakeholder survey.
- With completion of the SEIS13, conduct an open review and possible modification of existing AHM packages.
- Utilize information from stakeholder surveys to inform objectives and trade-offs between harvest management effects on birds versus hunters. Consider information emerging from recruitment, retention, and reactivation workshops (collaboration with the CAHSS Hunter Recruitment, Retention, and Reactivation (R3) effort) to develop predictions of hunter response to management actions.

Desired outcome:

- A consensus on how / whether NAWMP duck population goals should be related to harvest management objectives. If Atlantic Flyway and Midcontinent efforts can make adequate progress on updated harvest strategies, this may be a topic for consideration at the FoW2 Workshop.
- Information about hunter preferences about different regulations, perspectives on waterfowl management objectives, and trade-offs between hunting opportunity and regulatory simplicity are regularly incorporated into regulation development.
- A framework (likely scalable state/province rolled up to flyway / continental) and process for incorporating considerations of hunter participation objectives in harvest management on an on-going basis.
- Expand the discussion to advance the harvest management process for other species and in other regions / countries (inclusive of Canada, U.S., and Mexico)

Recommendation: Establish a Human Dimensions Working Group to support development of objectives for people and ensure those actions are informed by science. (see Appendix D)

Unfinished business: A formal Human Dimensions Working Group (HDWG) was established very early in Revision implementation, and a series of annual workshops (at times in conjunction with the Public Engagement Team (PET)), have led to purposeful integration of HD themes during implementation.

- Complete development surveys of hunters, viewers, and the general public (conducted during 2016 with initial results by spring, 2017). Resulting information will be used to inform harvest management and public engagement efforts.
- Develop a process for engaging the professional community regarding recruitment, retention, and reactivation (possibly in conjunction with FoW2)
- Utilize POS data to inform more useful metrics of user vital rates (e.g., retention, churn, lapse, etc. – despite proposals for funding, a broad evaluation

of POS data has not been forthcoming; some regional efforts have been initiated in the Central Flyway).

Desired outcome:

- Although elements of social science have become much more commonplace in NAWMP discussions and planning, this fundamental element needs to be routinely and effectively integrated across management actions to affect population and habitat decisions (on-going).
- Review the HDWG and PET TORs and amend where necessary to assure these two related functions are closely and effectively aligned.
- Increased capacity and integrations among waterfowl working groups related to human dimensions.
- Fully utilize emerging HD information during the process of re-evaluating NAWMP goals and objectives (initially explored during the FoW2 and possibly included as a primary element of the 2018 Update). A framework and process for incorporating considerations of hunter participation objectives in harvest management on an on-going basis (repeated from the harvest management recommendation).

Recommendation: Build support for waterfowl conservation by reconnecting people with nature through waterfowl, and by highlighting the environmental benefits associated with waterfowl habitat conservation. (see Appendix D)

Unfinished business:

- Task groups have been established for engaging waterfowl hunters, viewers, and landowners. Overall strategic direction was developed, and an initial meeting to begin outlining specific direction for each task group occurred in fall 2015. Co-chairs (ideally including PET and HDWG representatives) have been identified, and progress will need to continue on work plans.
- It will be critical to align social science (HDWG) with engagement initiatives (PET) to ensure both active implementation and also coordination and evaluation. A meeting of a small group of individuals from each group is planned for July 2016 during which alignment between the two working groups is discussed; thus, taking advantage of experience gained in the short history of the two groups.
- A number of “Petri-dish” experiments have been implemented by various joint ventures. Although initial insights largely are not available as yet, waterfowl managers are actively engaged in these efforts. It will be very important to coordinate efforts, communicate experience, replicate and scale-up successful initiatives, and ensure that consistent and rigorous evaluation yields lasting and leveraged value.

Desired outcome:

- Public engagement efforts are coordinated and evaluated adaptively; those showing positive impact on active support and involvement in waterfowl conservation and enjoyment are replicated / expanded at appropriate scales.

- Social science (HDWG) is aligned with engagement initiatives (PET) to ensure active implementation, coordination, and evaluation of public engagement efforts (initial insights gained by FoW2; however, implementation as a “way of doing business” will be a gradual process extending through 2018 and beyond).

Recommendation: Increase adaptive capacity so structured learning expands as part of the culture of waterfowl management and program effectiveness increases. (see Appendix E)

Unfinished business: A rigorous, adaptive management approach is central to science-based waterfowl management. Limited capacity and to a degree, lack of demonstrated relevance have accounted for slow progress.

- Initial efforts to identify key waterfowl management decisions were initiated (spring 2014); however, the work is incomplete and should be renewed (IIC and invited expertise). The intent would be to more fully develop a minimal set of multi-criteria decision frameworks that usefully and pragmatically describe the primary linkages among populations, habitat, and people. Necessary monitoring and assessment to inform these decisions over time also need to be identified (small group – IIC, PC Science Subcommittee, etc.; engaged during 2016/17; potentially incorporated into FoW2). Some obvious examples large scale decisions involve harvest management, allocation of limited habitat funds, investment in recruiting / retaining policy support from different stakeholders.
- Clarify responsibilities for advancing adaptive management capacity (PC Science Subcommittee and collaboration with the USC).

Desired outcome:

- USC plays an advocacy role in assuring an increase in adaptive capacity.
- Elements of adaptive management are prominent in the agenda, presentation, and breakouts at the FoW2 Workshop.
- Decision makers actively promote an adaptive framework for implementing waterfowl management in the 2018 Update.

Recommendation: Integrate waterfowl management to ensure programs are complementary, inform resource investments, and allow managers to understand and weigh trade-offs among potential actions. (see Appendix F)

Unfinished business: The theme of “coherence” was front-and-center in the 2008 Future of Waterfowl Management Workshop. The term took on broader meaning as authors of the 2012 Revision recognized that “integration” across the three goals of the plan would be more complex and demanding than initially envisioned by the JTG for harvest and habitat management. Regardless, “the nature of the conversation” has changed markedly during the few years since the Revision was implemented; these gains need to be perpetuated as the “culture” of waterfowl management gradually adapts to contemporary social, political, economic, and ecological landscapes.

- Initiate the process of assess movement toward 2012 Revision goals and objectives (USC)

- (Repeated from “Increase adaptive capacity ...”) Make progress in understanding functional linkages and the dynamics of the interacting human, avian and habitat systems that are being managed. Develop a minimal set of multi-criteria decision frameworks that usefully and pragmatically describe the primary linkages among populations, habitat, and people. Advance conceptual models about relationships between populations, habitat, and public use.
- Coordinate a comprehensive, inclusive, international review of the institutional structures and processes in place to support integrated waterfowl management and conservation.
- Consider terms of reference for a more formal IIC role (IC)
- Develop a clearly stated purpose / vision for the 2018 Update (USC)

Desired outcome:

- Institutional arrangements that perpetuate gains made towards integration of waterfowl management (USC in conjunction with IIC and PC, explored at FoW2 and any needed amendments proposed in the 2018 Update).
Considerations include:
 - Retention and growth of the strength of waterfowl management found in the technical expertise among various working groups that support policy level bodies.
 - A revitalized, strong linkage between separate technical functions and policy levels, including the NAWMP Committee.
 - An integrated technical function leading to more formal cross-over among technical working groups and between technical functions and policy levels.
- A responsive culture of waterfowl management, setting the stage for any needed transformation of an integrated system of waterfowl management – i.e., embrace a “responsive operating system” characterized by rapid cycles of learning, launching of minimally viable products, embracing failure, fostering even more transparency, learning from engaged customers, better use of networks (see Appendix G)

Appended to this outline are specific narratives related to particular recommendations from the 2012 Revision (Appendices A-G).

Appendix A

Recommendation: Develop, revise or reaffirm NAWMP objectives so that all facets of North American waterfowl management share a common benchmark

Duck population objectives developed for the NAWMP in 1986 were based on 1970's levels, and meeting these goals was assumed to be sufficient to *provide the opportunity for 2.2 million hunters in Canada and the United States to harvest 20 million ducks annually* (USFWS and EC, pg. 6). Goose populations were expected to be managed largely through flyway plans. Habitat goals involved maintaining the distribution and diversity of high quality waterfowl habitat necessary to maintain current distributions and population abundance under *average environmental conditions* (USFWS and EC, pg. 13). Specific habitat goals were established in 1986 and updated in subsequent plans through 2004. Objectives for users were implied but not explicit in 1986.

The IIC worked with the waterfowl management community to produce revised NAWMP objectives, which the Plan Committee approved in September 2014. The revised objectives now target 1) duck populations based on long-term averages and periodic abundance (80th percentile), 2) waterfowl conservation support at least at levels of the last two decades (hunters, viewers, active supporters, and landowners), and 3) habitat sufficient to support both waterfowl populations and resource users. This was the first revision of NAWMP objectives in nearly 30 years, and primary attention was paid to attributes that could be monitored going forward; however, a number of issues have yet to be resolved.

Unfinished Business:

Objectives for Populations:

- A process is in development by which JVs can “step-down” continental objectives to JV / regional scales (based on a reanalysis of a process developed by M. Koneff). This should not be interpreted as a mandate for various JV or states; instead the process provides a common “starting point” among JVs for planning based on more contemporary waterfowl population data (USFWS, NSST).
- A “one-size fits all” approach to the revision of population objectives, i.e., long-term average and periodic abundance, did not consider the more specific criteria from the 2012 Revision. These included 1) well understood population demographics, 2) sufficient monitoring programs, and 3) consistent with habitat and public use goals - all of which would be necessary for model-based objectives based on current understanding of limiting and regulating mechanisms.
- Approved objectives have met with legitimate questions about whether averages are realistic (e.g., scaup - in light of the impact of unrealistic “spikes” on averages). Actually, this is the case with a number of species for which objectives seem unrealistically high or unrealistically low in light of experience (see appended graphics).
- Objectives for populations / species outside of surveyed areas (wood ducks, sea ducks, geese) have not been addressed, and questions have arisen about whether mallard population goals should be specific to the scale of harvest management (i.e., Eastern Midcontinent, Western)

- Population objectives have not been informed by stakeholder values, an aspect that should be improved following surveys currently underway.

Objectives for people:

- Similar to waterfowl populations, objectives for people were developed using readily available attributes for numbers of hunters and viewers. Data are available but utilized only in limited fashion (e.g., point-of-sale data) to inform more useful metrics of user vital rates (e.g., retention, churn, lapse – combined, these would “roll up” to reflect the overall picture of hunter participation).
- Although the role of private landowners was acknowledged, only superficial attention was paid to developing more specific attributes related to landowners and private lands conservation programs or for broad public support of favorable land use policy.
- Surveys currently underway will add considerable information to knowledge about hunters, viewers, and the general public. Information is yet needed, however, on landowners and professional waterfowl managers (internal audiences). Planning the approaches for reaching these groups is the next step and will be developed collaboratively between HDWG and PET.

Objectives for habitat:

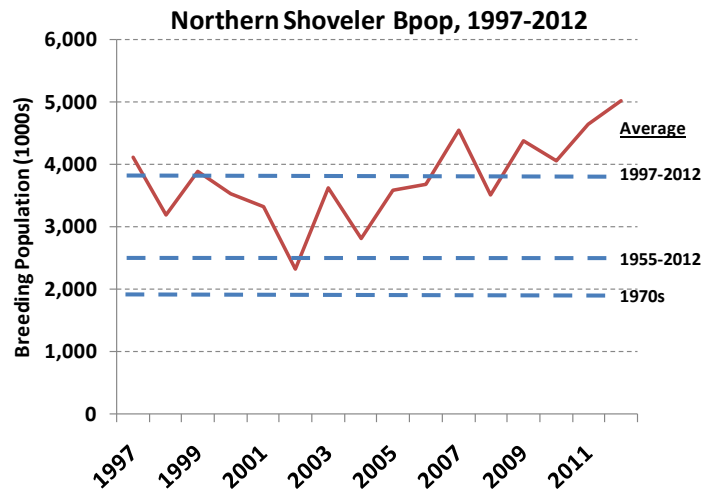
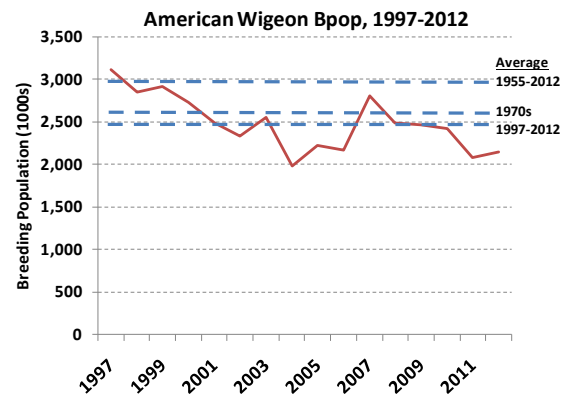
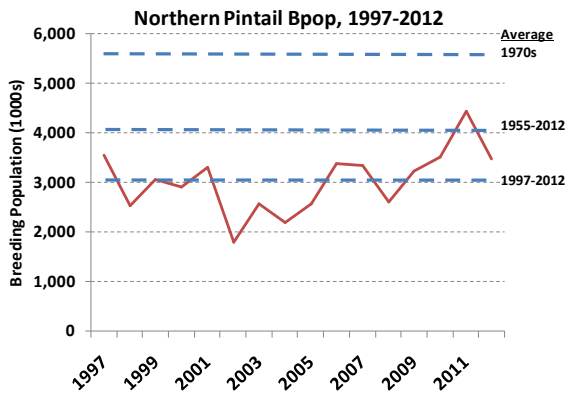
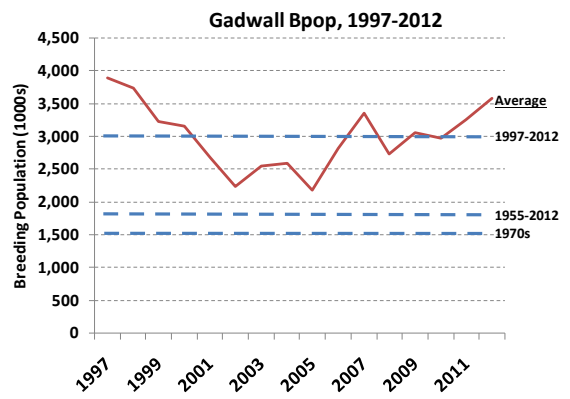
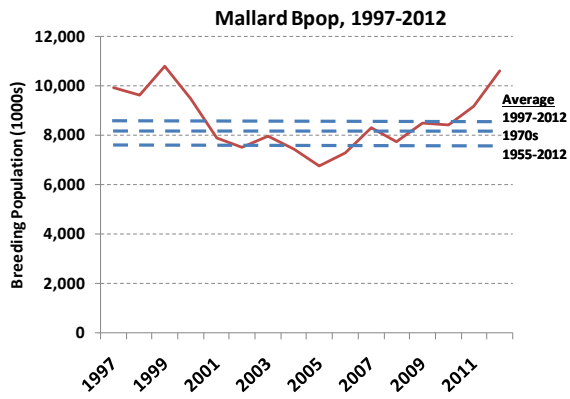
- Previous NAWMP updates included objectives for habitat. Initially, these were for key waterfowl landscapes (breeding grounds, wintering areas, and key migration areas for important species (e.g., American black ducks) but later were developed specifically for each joint venture. Efforts currently are underway to develop a common framework for stepping down continental objectives to regional scales.
- Habitat objectives have almost exclusively been related to landscape features important to waterfowl. With the fundamental objective for people added to the 2012 Revision, habitat objectives need to serve the objectives established for hunters, viewers, and other public benefits, such as ecological goods and services.

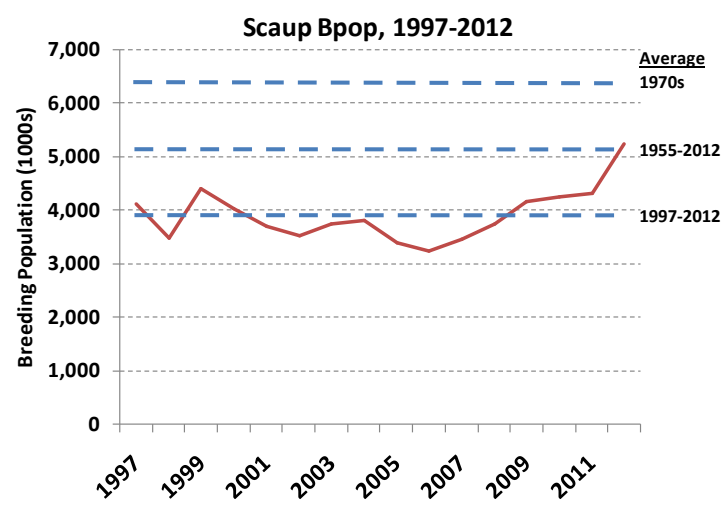
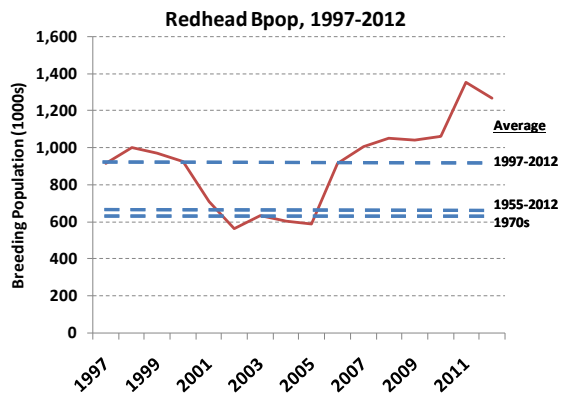
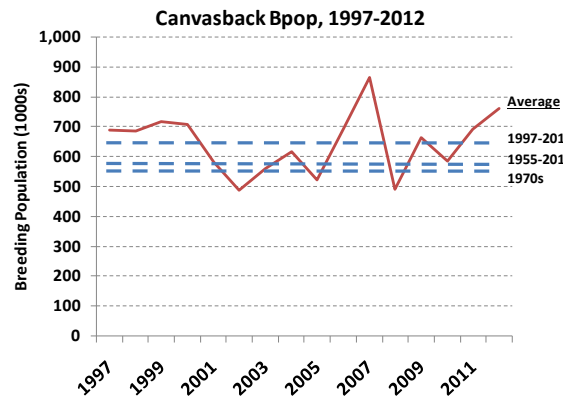
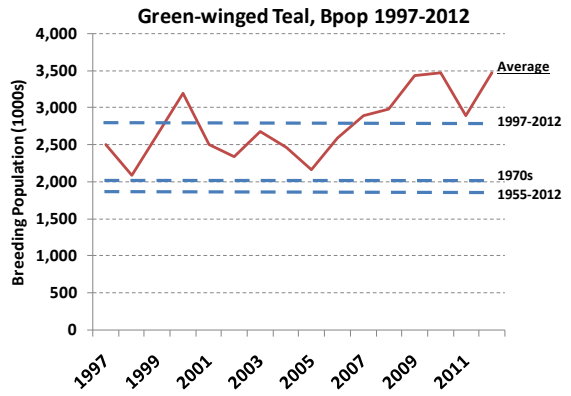
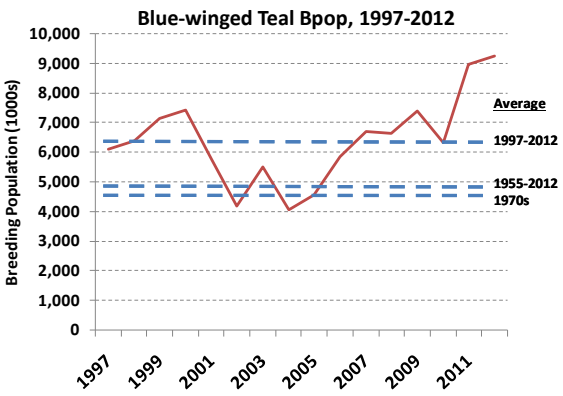
Looking Ahead: Objectives first developed for the NAWMP in 1986 were not revisited until after the 2012 Revision was approved. A process for periodically considering amended objectives should be a focus for the 2018 Update.

The impetus for much of the 2012 Revision emerged from the report of the Joint Task Group (JTG) that challenged the lack of linkage between population and habitat goals. Although more complex with the consideration of people goals and habitat as a means objective for achieving both waterfowl and human use objectives, it is appropriate to revisit the JTG framework in the context of experience since 2012 and pending the 2018 Update.

References:

U.S. Department of the Interior and Environment Canada. 1986. North American Waterfowl Management Plan. U.S. Department of the Interior, Washington, D.C., USA.





Appendix B

Development of a decision support tool to identify landscapes most important to achieving NAWMP waterfowl population, habitat, and social goals at multiple scales

Authors: NAWMP Science Support Team Priority Landscapes Committee (May 2016)

One of the seven recommendations of the 2012 NAWMP was to *focus resources on important landscapes*, with key actions as follows:

- Identify primary issues that must be considered when targeting waterfowl habitat conservation while achieving the three fundamental NAWMP goals.
- Develop scalable decision support tools for targeting management actions based on prioritization of conservation issues as determined by stakeholders.
- Identify the most important areas to deliver waterfowl habitat conservation at multiple spatial scales (continental, flyway, JV region).

A committee of the NAWMP Science Support Team (i.e., Priority Landscapes Committee) was established to address this recommendation, and although progress has been slow, we have maintained momentum and achieved several important milestones. These are as follows:

- Developed a detailed scope of work to provide a point of reference and guidance for our activities. Completed in 2014 with subsequent minor adaptations.
- Convened a face-to-face meeting during January 2016 to kick-start our work. During this meeting we identified our draft decision problem, clarify our objectives, and begin identifying spatial landscape attributes believed to have a relationship to these objectives.
 - Decision problem: Where do we allocate habitat conservation resources to achieve waterfowl population and “people” objective?
 - Assumption: Habitat is an important “means objective”
- Delivered a presentation at the 2016 NA Duck Symposium as part of a plenary session to update the waterfowl community on our progress toward implementing the 2012 NAWMP recommendations.
- Enlisted the services of Dr. Jim Lyons, USGS Research Ecologist, to provide facilitation, decision analysis, and other skills to this effort. We met with Jim during the Duck Symposium and have since had two conference calls. Discussions have focused on further clarifying the decision problem, identifying a candidate “real-world” decision body that could benefit from the eventual spatial targeting tool, and initial exploration of relevant landscape attributes.

Although assistance from Jim Lyons has provided valuable structure to our discussions, another hurdle to accomplishing our tasks is the lack of dedicated geospatial expertise to lead the collection, development, and analysis of spatial data crucial to this tool. We are hopeful that these skills will be provided through a combination of committee members and perhaps a yet-to-be hired USGS post-doc.

The desired outcomes of this effort over the next 18 months are quite clear and should be delivery of our identified products, including spatial depictions of priority landscapes for waterfowl habitat conservation at multiple scales and accompanying reports.

Appendix C

Recommendation: Adapt harvest management strategies to support attainment of NAWMP objectives.

Compiled by Jim Gammonley from efforts by a Mississippi Flyway, Central Flyway, and U.S. Fish and Wildlife Service working group

Key Actions:

- As waterfowl population, habitat, and user objectives are established, revisit harvest strategies to accommodate multiple, explicit objectives.
- Clarify the interpretation of waterfowl population objectives and the role of harvest management in attaining these objectives.
- Develop modeling frameworks that describe biological (i.e., waterfowl population) as well as social (i.e., hunter and other user) system dynamics, and predict the effects of diverse regulatory decisions on both systems.
- Assess trends and trade-offs related to regulatory alternatives including rule simplicity, harvest opportunity, hunter satisfaction, hunter participation, and management risk. Thoughtful consideration and research are needed to explicitly identify and quantify these trade-offs.
- Develop an integrated decision framework (e.g., JTG “Shoulder Strategy”) that ensures harvest policies are consistent with continental population objectives.

Progress to Date

This Action Plan recommendation is focused on U.S. duck harvest management and in particular, the AHM process currently used to manage harvest of 3 stocks of mallards, scaup, pintails, black ducks (recognizing that mallard AHM drives regulations for all duck species not covered by other strategies). Some progress has been made on reconsidering U.S. duck harvest strategies in relation to the new NAWMP goals:

- The USFWS 2013 SEIS established that U.S. regulatory packages for ducks would be opened for review and revision every 5 years. The intent was to have the first open review and possible modification of existing AHM packages the year following finalization of the SEIS, but that has not happened. However, this decision provides an approach and guidance for reviewing and updating regulations in the future.
- The Atlantic Flyway is developing an approach to multi-stock duck harvest management which accounts for the status of five species, and also includes an objective of maximizing hunter satisfaction. The Atlantic Flyway plans to review the new strategy with the Harvest Management Work Group in December 2016, with subsequent review by the other flyways, and a possible recommendation to the USFWS in June 2017.
- The Central and Mississippi flyways and USFWS are updating mid-continent mallard AHM components, including making technical updates to the model set, reconsideration of objectives and regulatory packages, and an assessment of metrics and monitoring needs for tracking hunter participation. One decision that has strong support from the flyways (and presumably USFWS) is to remove the NAWMP population objective as a constraint on the harvest management objective function for mid-continent mallards. The flyways are also exploring approaches to address multi-stock objectives. A recommendation to USFWS to implement the new strategy is planned for 2018.
- The Human Dimensions Work Group has successfully developed and obtained funding for a waterfowl hunter stakeholder survey with results and analysis expected in mid-2017. The survey will potentially provide information from a representative sample of active hunters on their preferences related to different regulations, and their perspectives on waterfowl management objectives, and

trade-offs between different types of regulations, and between hunting opportunity and regulatory simplicity.

- The Public Engagement Team has initiated a task group focused on waterfowl hunter recruitment and retention. The 2009 Waterfowl Hunter Recruitment and Retention Strategy is being used as a basis for this effort. The Task Group is developing a collaboration with the CAHSS Hunter Recruitment, Retention, and Reactivation (R3) effort. This objective is to support efforts to predict how hunters respond to specific management actions (including but not limited to annual hunting regulations), implement those actions at appropriate scales, and evaluate the results.
- The above activities are helping to develop and continue a broader dialogue across the waterfowl management community about harvest management objectives and approaches.

Unfinished Business

Harvest management objectives and the set of regulatory packages selected are the subjective, socially-driven components of AHM, and the waterfowl management community continues to lack a well-structured approach to addressing these components. It appears particularly difficult to reach strong agreement about harvest objectives. NAWMP and AHM call for harvest objectives that consider and are consistent with the NAWMP goals and objectives for populations, people, and habitats, and that are strongly supported by constituencies. There has been discomfort with a harvest objective of maximizing long-term cumulative harvest since the AHM approach was initiated. The “coherence” of a “right-shoulder” yield curve approach, while strongly promoted, continues to raise questions about interpretation and translation from harvest management to NAWMP objectives (e.g., is an equilibrium population size calculated from a yield curve appropriate to use as a NAWMP objective?, how is the K determined from a yield curve translated and applied to NAWMP habitat objectives and programs?). Input from hunters and other stakeholders (beyond managers) on harvest management objectives would be welcome, but it is unclear how to effectively gather this type of input (e.g., the stakeholder survey may provide limited insight on hunters’ preferences for continental harvest objectives). Rather, the groups working on updating harvest strategies will likely need to consider several alternative objectives so that the broader management community can review and compare the resulting harvest policies (frequency of various regulations, equilibrium population size, etc.) for each objective.

The path forward may be clearer on updating regulatory packages. Results of the stakeholder survey and previous work may provide guidance on acceptable ranges and combinations of season lengths and bag limits. Approaches to predicting harvest rates associated with a particular package exist but need further refinement and evaluation. As important, predictive models of the behavior (i.e., participation, rather than stated preference) of different types of hunters (e.g., new recruits, avids) in response to different regulations packages need to be developed. The 5-year cycle for considering updates to duck regulations packages should facilitate and incentivize structured gathering of new biological and social information, and conducting limited experiments with new regulation types, to justify future changes.

Although integrating social science information into harvest management objectives and regulatory packages remains a clear challenge, work on updating and improving biological models and monitoring programs used in AHM remains important. The HMWG and individual flyways working with USFWS continue to work on these components of AHM, but current and future capacity issues need to be addressed.

A variety of approaches are being used to address harvest management of geese and swans, and philosophies and approaches to harvest and hunter management differ among Canada, the U.S., and Mexico. Increased communication and collaboration, particularly related to explicitly considering hunters in the harvest management process, would be beneficial.

Key Management / Policy Action

- Develop a consensus on how harvest management and NAWMP duck population levels are related (see first paragraph under “unfinished business” above). If AF and mid-continent efforts can make adequate progress on updated harvest strategies, this may be a topic for consideration at the FoW2 workshop.
- Further develop framework for incorporating considerations of hunter participation objectives in harvest management on an on-going basis. Hunter participation objectives will likely be developed at the state/province scale and rolled up to flyway and continental objectives.

Appendix D.

Status of HDWG and PET: Engaging People

Summary by David J. Case for HDWG / PET

The theme of the 2012 NAWMP Revision, “People Conserving Waterfowl and Wetlands”, spoke loudly to the NAWMP community.

Two of the seven recommendations focused explicitly on engaging people:

- “Establish a Human Dimensions Working Group to support development of objectives for people and ensure that those actions are informed by science;
- Build support for waterfowl conservation by reconnecting people with nature through waterfowl, and by highlighting the environmental benefits associated with waterfowl habitat conservation.”

Although these recommendations were articulated separately, the details in the Action Plan highlight the synergistic relationship between the two. Both the Human Dimensions Working Group (HDWG) and a Public Engagement Team (PET) were officially formed in 2013 and the groups have been closely integrated and coordinated since.

The HDWG developed a work plan early-on that will culminate in coordinated national surveys of hunters, viewers, and the general public in 2016 with initial results by spring, 2017. Resulting information and insights gained through the surveys will inform harvest management and public engagement efforts.

The PET met jointly with the HDWG in 2014 and developed a public engagement strategy that was refined through a second joint meeting in 2015. The PET’s approach is to focus on public engagement efforts that add value to the NAWMP enterprise, to serve as catalyst, coordinator or hub of activities that couldn’t be done as effectively without the PET. In short, help others get things done.

Three priority actions were identified in the Strategy:

- “Action 1: Further develop and implement the 2008 Waterfowl Hunter Recruitment and Retention Strategy.
- Action 2: Engage the viewing communities and other conservation interested publics in actions that contribute to the NAWMP goals and objectives.
- Action 3: Increase landowner participation in conservation programs.”

Task Groups were formed to develop Action Plans for each priority Action. Although progress has been made on the Action Plans, it has not been at fast as desired. Leaders from the PET, HDWG and Task Groups will be gathering in July 2016 to find a way forward.

In addition to the PET and the HDWG, the NAWMP enterprise and associated engagement efforts are significant and ongoing as they have been for many years. Still, the joint ventures have embraced the engagement challenges and “petri-dish” engagement experiments have been implemented by various joint ventures. Insights from these efforts will inform development and implementation of the Action Plans and vice versa.

Appendix E.

Building Adaptive Capacity for NAWMP

NAWMP Interim Integration Committee

Mike Anderson (Revised June 17, 2016)

The 2012 NAWMP Revision and associated Action Plan strongly recommended enhancing the adaptive capacity of the Plan enterprise. In August 2013, Seth Mott and I, writing for the PC Science Sub-Committee, argued that Plan partners will achieve the goals of the revised 2012 NAWMP only if we approach meeting the science, coordination and communication work of the Plan differently than we have in the past.

What does “increase adaptive capacity” mean for NAWMP? Following the revision of Plan objectives (September, 2014), logically the next steps would seem to be identifying the most vital multi-criteria decision contexts, linking them with models, developing related adaptive management (AM) frameworks to allow us to learn over time, and specifying the required monitoring and evaluation work to support those AM frameworks. This sequence also was anticipated in the 2012 Action Plan. We concluded, therefore, that the job of “increasing adaptive capacity” had at least two major components: 1) developing the technical framework and plans to achieve such adaptive actions; and, 2) mustering the political and financial support, as well as providing steadfast leadership, to ensure that the work gets done. We thought that existing technical working groups, with sufficient staff support, should be able to address the first part. These groups include the IIC, NSST, the Human Dimensions Working Group (HDWG) and the Harvest Management Working Group (HMWG). The second component remained more difficult to visualize.

The more challenging questions are what resources are essential, and from where will they come for us to achieve the three inter-connected goals of the 2012 Revision? How can we muster the capacity to set up an adaptive process that will, over time, move us effectively and efficiently toward achievement of those goals? Seth and I suggested that the IIC and Science Sub-Committee members need to help the Plan Committee and our partner agencies become more effective advocates for implementing these AM initiatives. That might include employing PC leadership to help generate political support, financial support, staff assignments, and perhaps some adjustments in processes amongst institutions to ensure that the adaptive loops needed will actually exist and function. But the Plan Committee was not ready to embrace that challenge in 2013.

Taking a step back, it now seems clearer that three high-priority recommendations from the 2012 Revision are tightly linked, and these remain important for the attention of both the IIC and the USC. They are: 1) progress in integrating waterfowl management decisions, 2) increasing adaptive capacity to support all elements of waterfowl management., and 3) rethinking institutions in support of waterfowl management.

In brief, the IIC has concluded that to be practical and cost-effective, integrating key management decisions must be done selectively, at certain spatial and temporal scales, with those few decision problems where the co-dependence of objectives (for harvest, habitat, people, or a subset of these) is most strong. This represents useful conceptual progress with strong

implications for other actions. **Until it is clear; however, which management decisions should be linked we are unable to state in a compelling manner what our monitoring and assessment requirements will be and what, if any, institutional or process modifications may be necessary to pursue these multi-criteria decision analyses in an adaptive manner.**

This is true whether these key linkages emerge from bottom-up experience or top-down planning. The IIC has made some progress with trying to identify and model these decision nodes, but only a beginning. The IIC should consider further focus on this task as the USC begins its work. It may be good timing and a worthy goal to bring to FOW2 a small set of multi-criteria decision frameworks that we believe would usefully and pragmatically describe an initial useful framework for integrated waterfowl management. I believe that should be achievable within a year if we assemble a good mix of people and dedicate time to the problem.

We have also come to realize that increasing adaptive capacity will not happen until a compelling case can be made for such actions. Identifying the key decision problems that need to be informed, as just discussed, is one pre-requisite. Another will be an assessment of current capacity (funding, monitoring programs, staff assignments) and existing priorities vs. informing these new multi-criteria NAWMP decisions. Completing all this will take time, and likely cannot be finished before FOW2 just 15 months from now. Although as the IIC makes progress on identifying the key multi-criteria decision nodes, the dimensions of science needs will take shape and it should be possible to offer at least preliminary notions about these monitoring and assessment requirements for discussion at that 2017 Workshop.

The 2012 NAWMP Revision fundamentally changed our perspectives on decision support requirements. As the Public Engagement Team nationally, and various Joint Ventures regionally, launch work related to increasing the emotional and pragmatic ties of people to waterfowl conservation; as the IIC and others begin to build multiple objectives (users, birds, habitat) in linked decision analyses; we MUST ensure somehow that we have the staff time, and monitoring and assessment resources, available to improve these new actions over time. It is NOT sufficient to begin doing all these things related to people without the same rigorous assessments of effectiveness that have characterized research on NAWMP habitat effectiveness, impacts of hunting regulations and the like.

As Jim Gammonley explains in another chapter of this report, approaches to predicting harvest rates associated with a particular regulation package exist but still need further refinement and evaluation, and work on updating and improving biological models and monitoring programs used in Adaptive Harvest Management (AHM) remains important. But as important, predictive models of the behavior (i.e., participation, rather than stated preference) of different types of hunters (e.g., new recruits, avids) in response to different regulations packages need to be developed and tested. The 5-year cycle for considering updates to duck regulations packages adopted in the U.S. 2013 SEIS should facilitate and incentivize structured gathering of new biological and social information, and conducting limited experiments with new regulation types, to help inform future changes. Important too will be assessments of factors other than regulations (e.g., wetland access) in affecting hunter engagement and support. But the capacity to complete all such work needs to be addressed; little is in place today.

Various Joint Ventures have tested and improved their decision-support models for habitat delivery based on projected needs of their birds. Confidence in that work varies among JVs and needs to continue; moreover, decision support needs to be thought about anew in the context of all three NAWMP objectives. As Mike Carter argues in his chapter, encouraging innovation within and among Joint Ventures seems important and that too implies a greater need for evaluation and communication.

In short, from a decision-support point of view, the 2012 Revision was a “game-changer”. With the adoption of population, habitat and human goal statements the new Plan carried with it the need for integration of not just goal-setting, modeling, and monitoring activities, but probably institutional support systems as well.

The Plan Committee was adequately structured for its initial tasks of overseeing creation of the Joint Ventures, coordinating with the Flyway Councils, and generally guiding evolution of the 1986 Plan. With the creation of the NAWMP Science Support Team in 1999; however, things began to change. The NSST, with an unfunded science-support mandate, struggled to deliver what it was asked to do by the PC. Appointments of JV science coordinators in the US and their part-time assignments to work on the NSST brought some much-needed capacity. Coupled with the work of temporary task groups like the NAWMP Continental Assessment Team (2005-2007), the NSST made several advancements to guide habitat delivery of the Joint Ventures. With entrepreneurial spirit the NSST made progress, but proceeded well short of their ambitious plans and potential. Funding important research/planning activities that over-arch multiple JVs has remained particularly challenging.

Today, the broader vision of the 2012 Plan has moved waterfowl management and the Plan Committee into a new realm. This new vision includes science support for social as well as ecological sciences. The IIC, also a creation of the PC, has endeavored to coordinate efforts of the new HDWG, the NSST, the PET and the HMWG. But the challenges for resourcing clearly have grown. **The USC and the PC, need to think ahead in transformative terms.**

The time is rapidly approaching when greater adaptive capacity under NAWMP will be mission-critical. The IIC work plan correctly reflected that objective setting must come first. We also agree that elaboration of the key decision contexts requiring integration logically should come next, and that creation of new adaptive management frameworks should follow immediately thereafter. At that point the waterfowl community should have clear and compelling AM frameworks for which to advocate, and the need for adaptive capacity should appear more obvious and more urgent. That time is nearly here, and this comprises a major and immediate challenge for leadership by the Plan Committee and partner agencies. It also, I believe, merits substantial attention at the FOW2 and in the subsequent 2018 Update.

How shall we make progress? Experience shows that the PC acting alone is not enough. So who else must we inspire and what should be our strategy? At minimum we will need to develop the support of the most senior managers in our various agencies, and perhaps key elected officials and private citizens as well.

The IIC has great empathy for all who are managing conservation programs in the face of challenging fiscal circumstances. But there are always choices, even in very trying budget

cycles. We think a prerequisite for success is for NAWMP to be seen as a high-value option for scarce dollars and staff time, which of course connects to the overarching goal of the 2012 Revision of enhancing the relevance of waterfowl & wetland conservation to its many stakeholders.

We also need to encourage waterfowl managers to focus their existing resources in the most effective ways possible. We have good stories to tell; maybe part of what we need to do is re-think how we tell them or who tells them? To that end we hope for guidance from the expected work of the Public Engagement Team.

We think that the overall fiscal climate is unlikely to swing around soon, so NAWMP needs a strategy to succeed despite lean times for governments. In terms of capacity, we should ask: What should the PC, we as individual members, and our associated technical bodies be doing NOW to help create more favorable circumstances for achieving the broad goals of the 2012 Revision? If we don't make creative strategic adjustments soon we have no reason to expect any improvement in our resource situation or in our chances to succeed in implementing NAWMP 2012.

NAWMP has been an outstanding model for conservation success over 30 years. Our challenge now is to emerge with a model for implementing the transformational changes needed to achieve the Plan's new and ambitious multiple goals, which we submit reflect the challenges of managing linked social-ecological systems that increasingly characterize all of wildlife conservation.

Appendix F.

Recommendation: Integrate waterfowl management to ensure programs are complementary, inform resource investments, and allow managers to understand and weigh trade-offs among potential actions.

Changes in institutional arrangements were considered premature when the 2012 NAWMP was written; however, it was recognized that both technical and decision-level processes ultimately would be involved. The authors acknowledged that a more permanent focal point, serving a consensus-building function, would be required to reach consensus around integrated objectives. Key actions related to decision processes included 1) development of the stakeholder process, 2) identification of who will be responsible for an expanded set of integrated objectives (institutional process), and 3) identification of how decisions at various scales will be integrated (rolled up / stepped down). The waterfowl management culture necessary for this to occur was captured in NAWMP 2012: People Conserving Waterfowl and Wetlands (pg. 24):

“Ultimately, the development of a more fully integrated management system will depend on institutional processes and structures that facilitate integration across management streams and objectives. This will require an organizational culture and processes that support creativity, flexibility, justified risk-taking, and a focus on learning. In general, the form of institutions and coordinating processes should evolve to allow the functions of the developing system to work smoothly and efficiently. Sometimes, however, it may be necessary for institutional change to precede development of a new framework, in order to create the necessary environment for change.”

Although premature in 2012, the challenge to the IIC (and the USC leading to the 2018 Update) outlined in the NAWMP Action Plan (pg. 26) included:

- an assessment of movement toward Plan goals and objectives,
- a review of progress in understanding functional linkages and the dynamics of the interacting human, avian and habitat systems that are being managed,
- analysis of the waterfowl management community’s effectiveness, efficiency and responsiveness to change.

Further, and once the technical perspective is better defined (pg. 28):

- coordinate a comprehensive, inclusive, international review of the institutional structures and processes in place to support integrated waterfowl management and conservation,
- form recommendations for any necessary restructuring,
- consult comprehensively with the waterfowl management community to seek broad consensus and support for any necessary restructuring.

Unfinished business: Objectives laid out in the 2012 Revision were quite ambitious, and analysis of the waterfowl community’s effectiveness and efficiency largely will be through a lens of reality (capacity and budgets). Those elements with greatest traction have been those for which existing task groups (HMGW, NSST, HDWG, PET, Flyways) already were well aligned with NAWMP goals and management actions. Progress towards integrated system of waterfowl management often seems slow, and indications of progress have been difficult to measure. Although subtle, the language of the discussion has changed as evidenced by the greater

frequency of human dimensions references in discussions of objectives and management actions. More tangible evidence of integration includes:

- The IIC, simply by the composition of membership, reflects an integration of technical, policy positions, agencies, and geographies.
- The HDWG, through simultaneous development of stakeholder surveys for hunters, viewers, and the general public expanded information gathering well beyond traditional constituencies.
- The NSST Priority Landscapes Committee, in developing a decision support tool, has integrated (work in progress) attributes related to waterfowl, people, EGS, threats, and opportunities.
- The majority of efforts by the HDWG and PET have been in concert, integrating strategic development and social science with public engagement and communications.
- “Petri-dish experiments” have been developed in several Joint Ventures that integrate integration of waterfowl management actions with objectives for landowners and other stakeholders at scale relevant to particular landscapes.
- Insights for how approaches to life cycle models for northern pintails, American black ducks, and scaup can be integrated.
- An integration workshop jointly developed by the NSST and IIC demonstrated the complexity and necessary detail needed to confront integration in specific landscapes at JV scales (complete documentation of the process also was developed)

Looking ahead: Continued implementation of the 2012 Revision would be facilitated by on-going assessment of movement towards plan goals and objectives while continuing to execute the plan (i.e., status, next steps, course corrections). Ultimately, however, the USC will be responsible for the formal assessment related integration via the 2018 Update.

It is not too early to begin considering institutional arrangements that perpetuate the gains made towards integration of waterfowl management that include a revitalized, strong linkage between technical functions and the NAWMP Committee and other policy levels (potentially amended or alternative structures drafted by IIC in collaboration with USC, explored during the FoW2, and proposed through the 2018 Update).

Based on experience to date, some assumptions include:

- Most existing institutions of waterfowl management are functional and should be retained; integration across these working groups can be improved.
- A key strength of waterfowl management is found in the technical expertise among various technical working groups that support policy level bodies.
- A revitalized, strong linkage between separate technical functions and the NAWMP Committee is needed.
- An integrated technical function can lead to greater policy strength of the NAWMP Committee.

Integration across various segments of the waterfowl management enterprise will require continuous cross-communication and purposeful coordination. Ultimately and gradually, development of a responsive culture within the waterfowl management enterprise would aid in the transformation towards an integrated system of waterfowl management (see Appendix G).

Appendix G

Continuing to Create a Responsive NAWMP Culture (Mike Carter, PLJV)

Most of what follows is not about what is undone from the 2012 Revision but merely encouragement to continue to foster a responsive NAWMP culture by offering one model that is becoming widely adopted by organizations conquering challenges familiar to NAWMP. With the 2012 Revision, we have invited change, and in some cases prescribed it, resulting in either incremental or seismic progress. Notably, the local experiments (a.k.a. “Petrie dish” experiments) have been successful in fostering organic change with no real boundaries or guidance just an urging to consider using human dimensions/social science in our work. Similarly by testing the waters on using ecological goods and services there has been a general recognition that the approach shows promise. Both the Human Dimension Working Group and Public Engagement Team are experiments to see how they can advance the waterfowl conservation enterprise. As successes (and failures) are reported, more experimentation and learning will continue to happen, which should accelerate progress through positive feedback. Responsiveness, as portrayed here, highlights and urges the continued use of approaches that foster reliable learning rooted in small experiments, embracing failure, rapid turnaround, and communicating what we learn in fast-cycling processes. It argues against untested processes that develop in multi-year timeframes and are structured to give a presupposed result that we assume most will adopt.

Today, lean start-ups are adopting Responsive Operating Systems to build their businesses which is disrupting business models that have operated for scores of years. It is important to note that responsive does not mean rapid or poorly conceived; it means reactive to feedback, receptive to change, and flexible enough to correct course. The start-ups are not really trying to change anything but instead are responding to perceived needs by being hyper-aware of their customers and experimenting -- which, in turn, is changing nearly everything. Responsive Organizations are built to learn and respond rapidly through the open flow of information; encouraging experimentation and learning on rapid cycles; and organizing as a network of employees, customers, and partners motivated by shared purpose (www.responsive.org/manifesto/).

Going into the next plan update, it would be good for NAWMP to ask our institutions to experiment freely with execution of The Plan through: rapid cycles of learning, launching of minimally viable products, embracing failure, fostering even more transparency, learning from engaged customers and better use of networks all while working toward a common purpose that is well defined and stated. In short, to embrace a Responsive Operating System as laid out in the following link:

<https://medium.com/the-ready/the-operating-model-that-is-eating-the-world-d9a3b82a5885#.ddp672r9q>.