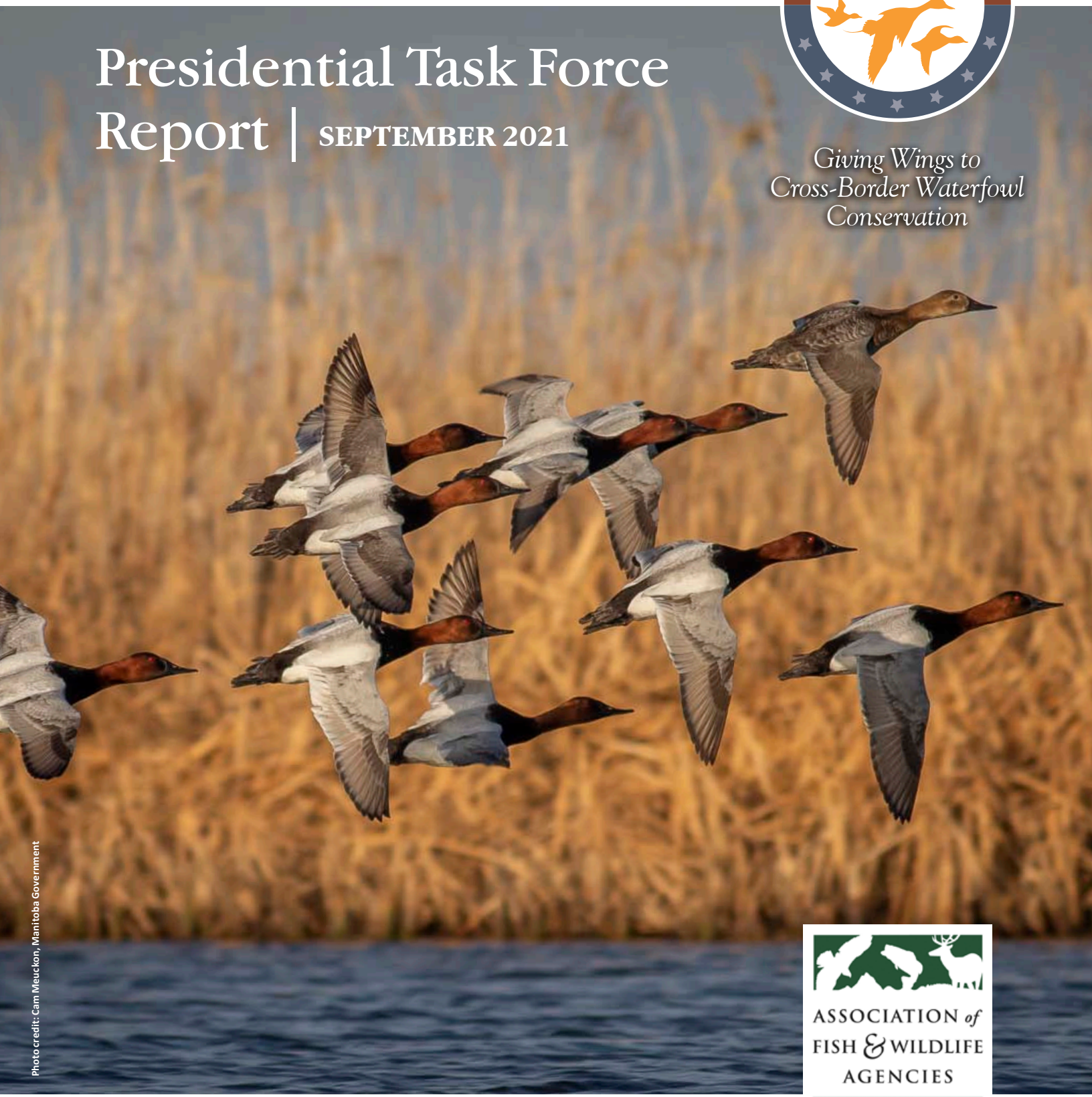
FALL FLIGHTS

Presidential Task Force Report | SEPTEMBER 2021

Giving Wings to Cross-Border Waterfowl Conservation



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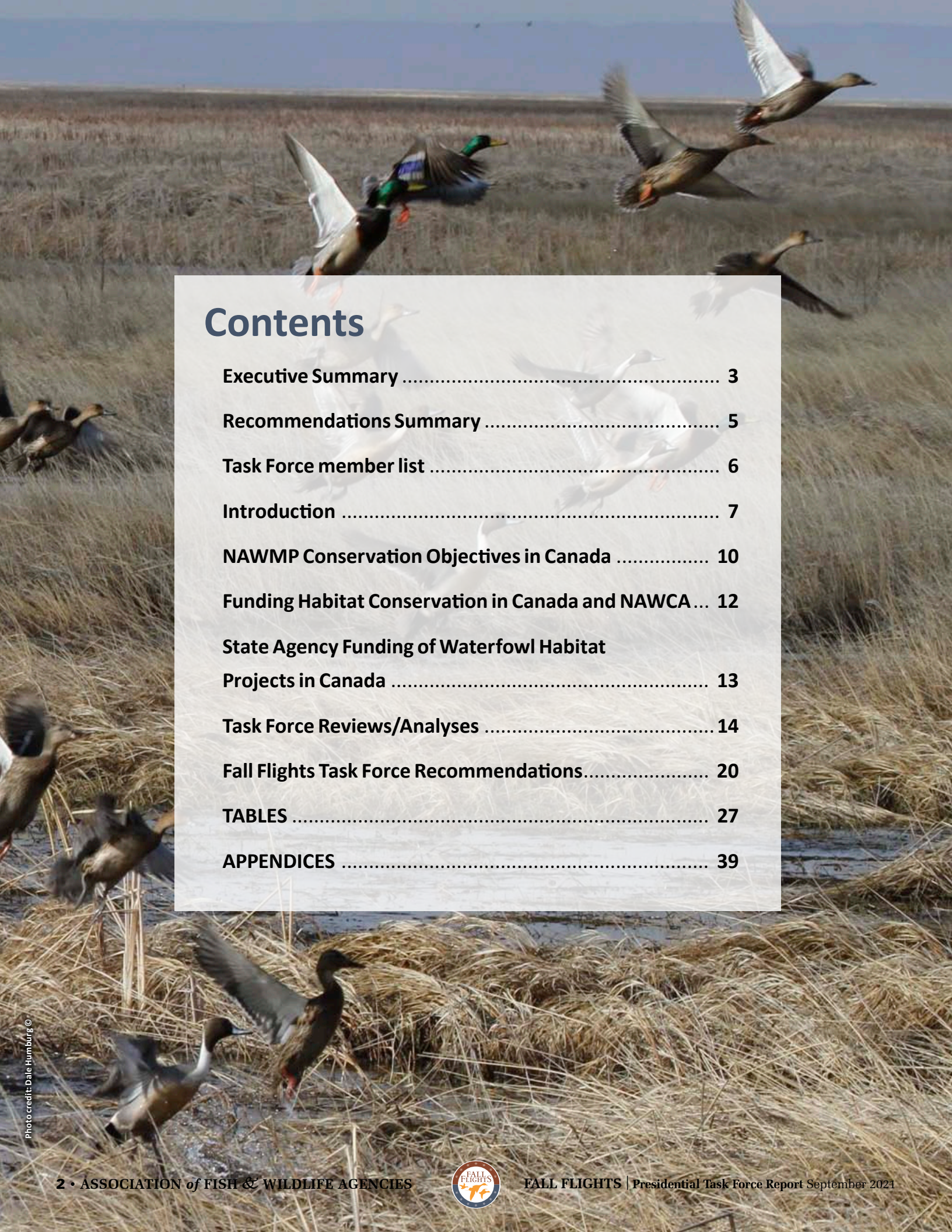
ASSOCIATION of FISH & WILDLIFE AGENCIES

The voice of fish and wildlife agencies



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Association of Fish & Wildlife Agencies Presidential Task Force Report

SEPTEMBER 2021

Executive Summary

The federal governments, states, provinces, territories, and non-government partners have shared interests in North America's waterfowl and the habitats they use to breed, migrate, and winter throughout the continent. In 1986, the North American Waterfowl Management Plan (NAWMP, or Plan) was signed by Canada and the United States and the two nations (joined in 1994 by Mexico) embarked on one of the most important, influential, and ambitious wildlife conservation initiatives in the history of North America. The Plan has arrived at its 35th anniversary and has proven to be one of the world's most successful conservation programs.

The North American Wetland Conservation Act (NAWCA), in 1991, became a significant source of funding for wetland conservation projects in the United States, Canada, and Mexico. NAWCA required matching funds at a ratio of at least 1:1, and for projects in Canada and Mexico, it required that the matching funds be non-federal funds originating in the U.S. In 2010, funds sourced in Canada became eligible for up to 50% of the non-federal match. The critical effect was that NAWCA funds for habitat conservation are available only to the extent that non-federal partners contribute matching funds for habitat projects in Canada and Mexico.

In support of the NAWMP and the recognition of the critical need for non-federal match funding, the Association of Fish and Wildlife Agencies (AFWA) passed a resolution in 1991 that established a goal for state agencies to contribute up to $10 million annually for breeding habitat projects in Canada. The goal was re-affirmed in 2005 and 2011 after Presidents' Task Forces reviewed state contributions. Ducks Unlimited Inc. matches each

dollar contributed by the states before they are matched again with Canadian partner and NAWCA funds. Delta Waterfowl provides matching funds for the Manitoba Habitat Heritage Corporation (MHHC). In 2019, the program became known as Fall Flights.

From 1991 to 2020, state agencies contributed $US 85.7 million to Canadian projects, while Canadian provincial and territorial contributions have been $US 272 million. In total during this period, $US 2.1 billion have been invested by U.S. and Canadian partners in waterfowl and wetland conservation projects in Canada. Although this investment is significant, wetlands and the associated upland habitat continues to be at risk in the breeding grounds. Additionally, the annual level of state contributions has been less than one-third of the Association's goal and the annual contributions of state agencies have never exceeded $US 4 million.

The Association's 2020-2025 Strategic Plan committed to facilitate partnerships among member fish and wildlife agencies to leverage existing resources and to maximize the impacts of existing conservation dollars. Consistent with this focus, the Association's President, Sara Parker Pauley of Missouri, established a Fall Flights Task Force in 2020 and charged the Task Force to review the progress made toward implementing the Fall Flights program and to engage Canadian Joint Ventures to identify their habitat conservation needs for the next 10 years. The Task Force was also charged with updating the allocation of the $10M program goal to each state based on new hunter and waterfowl harvest data, to identify immediate and longer-term actions to build the "Fall Flights brand" and increase participation in the program, and to identify an approach to enhance the strategic management of the Fall Flights program.

The Task Force examined the 2016 Action Plan and analyzed the actions using a benefit/cost approach which resulted in the development of six new action statements, instead of the previous 23 action items. The new statements are focused on pragmatic actions that will improve Fall Flights program activities in four areas: (a) State Agency Stewardship, (b) Outreach and Communication, (c) Increasing Funding, and (d) Biological Connectivity. The Task Force also examined the methodology used to allocate the Fall Flights goal among state agencies and concluded that applying the methodology of using the average number of active duck hunters and the duck harvest for each state over the period 2000 to 2019 was the most equitable approach to update the state goals.

The Association's goal of $10M is ambitious but it is soundly based on the habitat need in the Canadian breeding grounds. The Task Force explored ideas for how to encourage state fish and wildlife agencies to increase their investments toward achieving the goal. It was concluded that developing a 'stepwise goal' was best and that the Association should establish an interim goal for Fall Flights of $5 million and 100% participation by state agencies by 2026. If state agencies are going to increase their investments, so too will Canadian conservation organizations and provincial and federal governments. Therefore, targets were established for matching investments by provincial and federal governments based on the approach used in Canada for notionally allocating NAWCA grants among the four habitat Joint Ventures.

State fish and wildlife agencies are all unique, however, the Fall Flights Task Force believed that state agencies also had commonalities that could be identified and used to communicate better and more effectively with groups (or clusters) of agencies about the Fall Flights program. Therefore, the Task Force completed a clustering analysis using twelve variables related to the importance of waterfowl, spending priorities, and other state and fish and wildlife agency characteristics. The analysis produced six clusters of states that have common characteristics and that will aid the Association and its staff/consultants to target key messages or information that is most relevant to the interests and needs of the states within the clusters. The Task Force conducted a survey of state fish and wildlife agency directors and wildlife chiefs to gain additional insights about how the Fall Flights program is viewed and implemented by states. The results of the survey can be used to develop the key messages for the state clusters and to improve the future management of the program.

Lastly, in response to the President's charge to enhance the strategic management of the Fall Flights program, the Task Force examined several potential governance systems. The Task Force concluded that creating a 'Fall Flights Advisory Committee' based on a consultative governance model was best for the program. There should be representation from each of the regional associations, from at least one Canadian province, and from the National Flyway Council (NFC). The chair of the Association's Waterfowl Working Group and staff or contractors working directly with the Fall Flights program also should be involved in the Advisory Committee.

Recommendations Summary

In response to the analyses and significant deliberations the Fall Flights Task Force respectfully offers the following recommendations to the Association of Fish and Wildlife Agencies for consideration and action:

RECOMMENDATION #1:

AFWA Goal for the Fall Flights Program — The Task Force recommends that the Association of Fish & Wildlife Agencies (AFWA) reaffirm its commitment to the $10 million annual program goal and that state fish and wildlife agencies endeavor to maximize their investments in furtherance of the goal to collectively increase the required US non-federal match funding for North American Wetland Conservation Act (NAWCA) projects in the waterfowl breeding grounds of Canada.

RECOMMENDATION #2:

Stepwise Interim AFWA Goal —The Task Force recommends that the Association of Fish & Wildlife Agencies (AFWA) adopt a stepwise interim goal of $5 million in annual contributions and 100% participation of state fish and wildlife agencies by 2026.

RECOMMENDATION #3:

Apportionment of the $10 Million Fall Flights Goal Among States — The Task Force recommends that an equal weighting of the percentage of each state's active waterfowl hunters and duck harvest, relative to the national values, be averaged over the period 2000 to 2019 to provide the methodology for establishing new state goals for sharing of the $10 million annual Fall Flights goal.

RECOMMENDATION #4:

New Canadian Goals for NAWCA Matching Funds — The Task Force recommends that federal and provincial goals for Canadian NAWCA match be established. Goals shall be proportional to the current level of government investment as Canadian NAWCA match and adjusted for the science-based approach of allocation of NAWCA in Canada as outlined in the NAWCC (Canada) Strategic Plan for 2020-2030. Federal goals will be established at the Joint Venture level and provincial goals established at their respective jurisdictional level.

RECOMMENDATION #5:

Establish Fall Flights Advisory Committee — The Task Force recommends that the AFWA President create a standing Fall Flights Advisory Committee to oversee the implementation of the Fall Flights program and to report annually to the Association's membership, as well as provide guidance and advice to the Association's President and Executive Director. The Advisory Committee members shall be at the state director level (or equivalent for NGOs) and appointed by the AFWA President to operate under a consultative governance structure.

RECOMMENDATION #6:

Identify Financial Resources for a Fall Flights Program Coordinator and Other Program Activities — The Task Force recommends that financial resources be identified in the Association's annual budget and matched, at a minimum of one-to-one, by participating non-government partners to support a contract-based Fall Flights Program Coordinator.

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Fall Flights Acronyms

AFWA	Association of Fish and Wildlife Agencies
AHM	Adaptive Harvest Management
CIJV	Canadian Intermountain Joint Venture
DUI	Ducks Unlimited Inc.
DUC	Ducks Unlimited Canada
EHJV	Eastern Habitat Joint Venture
IAFWA	International Association of Fish and Wildlife Agencies
MHHC	Manitoba Habitat Heritage Corporation
NAWCA	North American Wetlands Conservation Act
NAWCC	North American Wetlands Conservation Council
NAWMP	North American Waterfowl Management Plan
NCC	Nature Conservancy of Canada
NGO	Non-Government Organization
NFC	National Flyway Council
NTBC	Nature Trust of British Columbia
PBHJV	Pacific Birds Habitat Joint Venture
PHJV	Prairie Habitat Joint Venture

Photo credit: Larry Kruckenberg

Introduction

Foundation of the Fall Flights Program

The North American Waterfowl Management Plan (NAWMP, or Plan) has arrived at its 35th Anniversary. The Plan was signed in 1986 by the Minister of the Environment in Canada and the U.S. Secretary of the Interior, and the two nations (joined in 1994 by Mexico) embarked on one of the most important, influential, and ambitious wildlife conservation initiatives in the history of North America.

The NAWMP partnerships have worked toward habitat protection, restoration, and enhancement and resulted in over 50 million acres of wetlands and associated habitats secured in Canada[1], the United States and Mexico. Efforts in Canada have influenced land use change and conservation activities on an additional 180 million acres. However, in the face of accelerating economic, social, and ecological change, the future of the waterfowl resource, its continental habitat areas, and the legacy of waterfowl hunting, are far from secure.

The waterfowl community has recently developed a renewed purpose statement for the NAWMP — *to sustain North America's waterfowl populations and their habitats at levels that satisfy human desires and perpetuate waterfowl hunting, accomplished through partnerships guided by sound science*. The new purpose statement has led to the emergence of three new goals (NAWMP, 2018):

GOAL 1: Abundant and resilient waterfowl populations to support hunting and other uses without imperiling habitat.

GOAL 2: Wetlands and related habitats sufficient to sustain waterfowl populations at desired levels, while providing places to recreate and ecological services that benefit society.

GOAL 3: Growing numbers of waterfowl hunters, other conservationists and citizens who enjoy and actively support waterfowl and wetlands conservation.

The NAWMP recognized two fundamental truths. The first was that *the continent's waterfowl resource is a shared resource*, and the second was that *everyone sharing in the benefits of the waterfowl resource would have to work in broad partnerships*. Explicit cooperation among the geographic areas and entities (e.g., federal, state, provincial and territorial governments, tribes, landowners, duck hunters) who share a vested interest in waterfowl is necessary to sustain them on the breeding grounds, throughout their migration, and in the wintering areas. The NAWMP partners explicitly accepted and committed to the shared international responsibility for conserving vital waterfowl habitats across North America.

History of the Fall Flights Program

The Association of Fish and Wildlife Agencies and its member states have been active leaders and principal partners in implementing the NAWMP. In 1991, recognizing the significant challenge represented by the NAWMP, the Association passed a resolution (Appendix A) that stated (in part) "*the states shall strive to maximize state support in the range of $10 million per year from the states as U.S. matching funds for NAWMP projects in Canada and … that the [Association] … continue to explore, through the flyway councils and other appropriate avenues, ways and means of achieving this goal*." Since 1980, state fish and wildlife agencies have invested between $1.1 million and $3.7 million annually for a cumulative investment in Canadian waterfowl breeding grounds of over $100 million (Figure 1).

As early as 1965, DU began working with state agencies to fund projects in Canada. Ducks Unlimited Inc. partnered with the Association in 1991 by committing to match every dollar contributed by states, and to then match those dollars with North American Wetlands Conservation Act (NAWCA) funds to deliver waterfowl habitat conservation projects in Canada. With the addition of Canadian partner funding, now including Delta Waterfowl and the Manitoba Habitat Heritage Corporation, the partners provide funding at least four times greater than the amount contributed by state fish and wildlife agencies alone.

[1] *Involves the protection of habitat through land transfer or binding legal agreements with landowners (10-year minimum).*

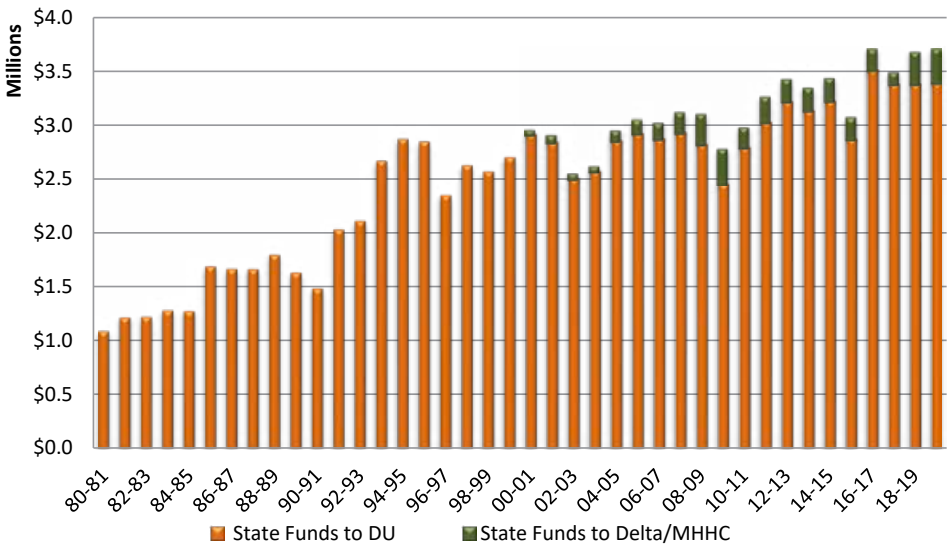


Figure 1: Annual level of investment by state fish and wildlife agencies in Canadian waterfowl habitat project

In 2001, the President of AFWA established a Task Force to review the status of state commitments to NAWMP projects in Canada and to clearly identify the future direction for state contributions toward the continental implementation of the NAWMP. In September 2005 and September 2011, the states reaffirmed their pledge to the original $10 million annual goal and renewed their commitment to making progress toward the goal. In 2019, the Association adopted the name "Fall Flights" for the program and initiated efforts to develop the brand—

FALL FLIGHTS: Giving Wings to Cross-Border Waterfowl Conservation.

Why States Should Invest in Waterfowl Habitat Projects in Canada

States have long recognized the shared nature of the waterfowl resource and exerted their collective efforts to manage waterfowl populations and habitats. One of the most tangible sources of evidence of the importance of Canadian habitats to U.S. interests is the band return data. Since 1923, the Bird Banding Laboratory, in collaboration with the Bird Banding Office of the Canadian Wildlife Service, manages more than 77 million archived banding records and more than 5 million records of encounters. Banding data were instrumental in the development of the Flyway System, Adaptive Harvest Management (AHM) and are used by biologists for many other valuable purposes:

- Providing knowledge about movements of birds,
- Estimating demographic parameters and determining dynamics of bird populations,
- Management of gamebirds,
- Ecological research requiring individual recognition,
- Monitoring populations and individuals, and
- Educating the public about science and birds.

To precisely estimate the percentage of a particular state's duck harvest derived from Canada, banding programs for all species would need to be distributed across the breeding range and linked to regional and continental breeding population estimates. These and other related data are not currently available to precisely quantify the relationship of waterfowl production in Canada to each state's harvest. However, long-term band return data for ducks marked during the breeding season have clearly demonstrated the importance of Canadian breeding habitats to the derivation of harvest by U.S. duck hunters (Figure 2). For example, in non-production states, birds banded in Canada typically comprise from two-thirds to four-fifths of the harvest. Even in production states, a significant portion of harvested ducks are produced in Canada.

Waterfowl harvests within states is another key reason for state fish and wildlife agencies to invest in Canadian waterfowl habitat. In general terms, a high proportion (approximately 70%) of waterfowl harvested in the U.S. are produced by habitats in Canada. Thus, the continental waterfowl population and the success of duck hunters in the U.S. are intimately tied to and dependent upon the integrity of waterfowl habitats in Canada. During the period 2000-2019, the average number of active waterfowl hunters per year in the U.S. was 1.15 million and they harvested on average 13.37 million ducks. In comparison, there was on average 1.4 million waterfowl hunters who harvested 12.24 million ducks per year during the period 1970-1999 (Figure 3).

Hunters and anglers in the United States historically spend about $76 billion per year, and hunting and fishing activities support more than 1.33 million jobs and generate more than $25 billion a year in federal, state, and local taxes (Southwick 2021). Waterfowl harvest in the United States accounts for over 90% of the North American harvest and generates a total economic output of $3 billion and state and federal tax revenues of more than $434 million. Waterfowl hunting also sup-

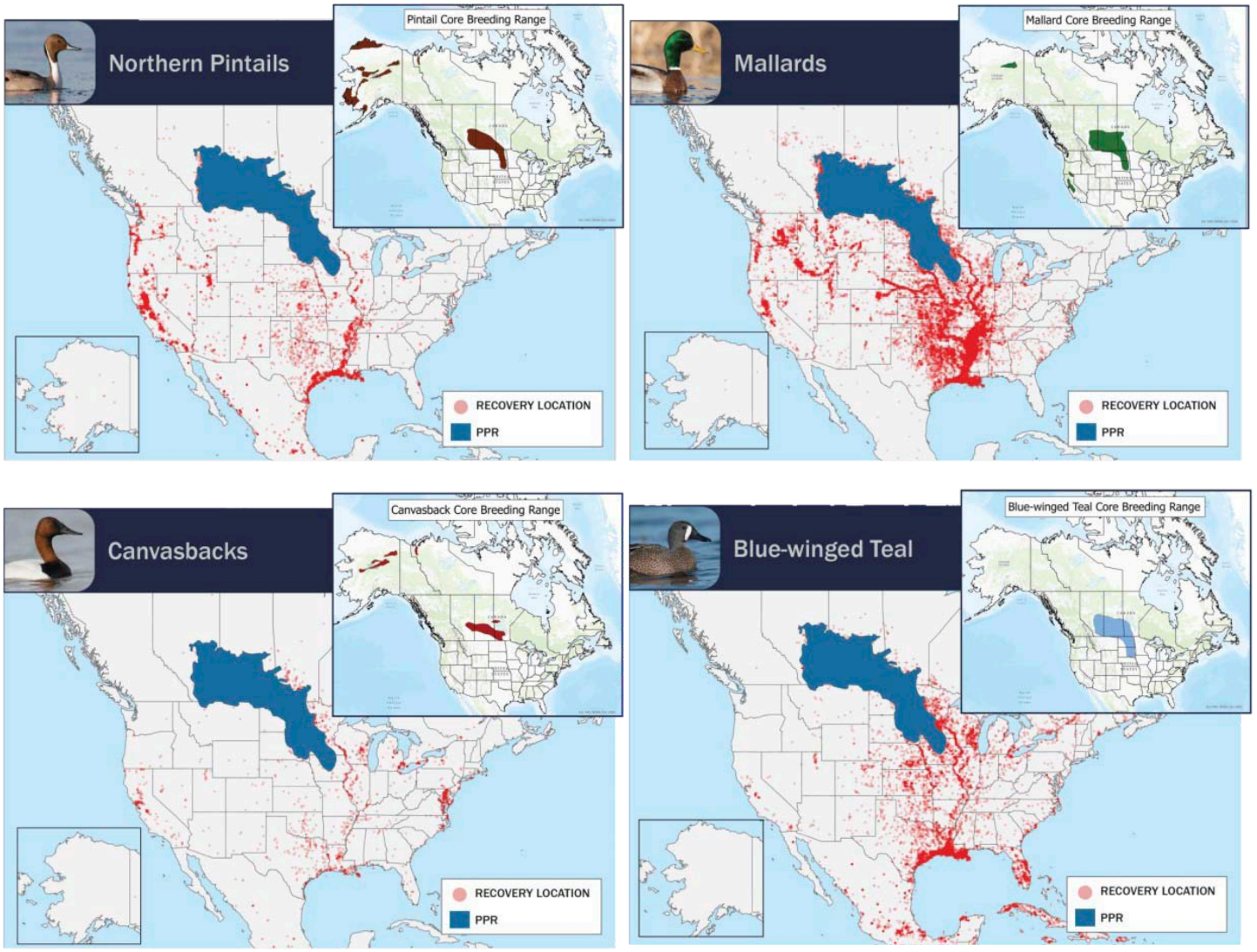


Figure 2: Historic band recoveries by hunters for birds banded in the Prairie Pothole Region during June, July, or August. *(source: deltawaterfowl.org)*

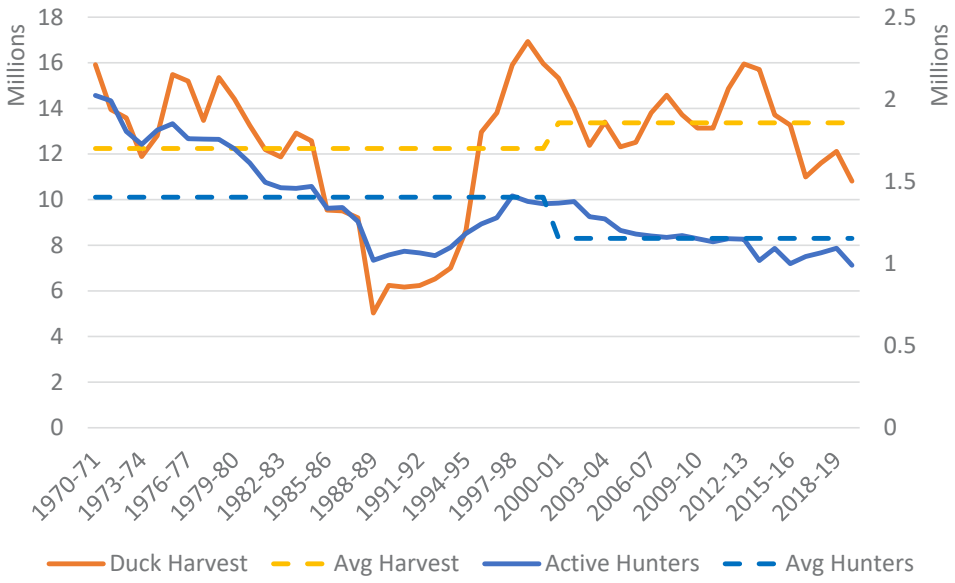


Figure 3: Annual duck harvest and active duck hunters in the United States (1970-2019)

ports over 27,000 jobs that produce almost $1 billion in employment income. (USFWS 2011)

Fall Flights is a powerful partnership program for state fish and wildlife agencies. It helps drive state economies by supporting outdoor recreation, tourism, and hunting opportunities. It advances important local and international conservation goals by making a long-term investment in the future. By funding critical waterfowl habitat conservation work in Canada, the Fall Flights program ensures waterfowl and other migratory birds make their legendary fall flights to the United States every year.

NAWMP Conservation Objectives in Canada

Photo credit: Cam Meuckon, Manitoba Government

Since its inception, NAWMP has had governments, conservation organizations, landowners, and citizens engaged throughout Canada, Mexico, and the United States using a widely acclaimed partnership model of waterfowl management. The *2018 Plan Update — Connecting People, Waterfowl, and Wetlands* establishes important groundwork for incorporating an understanding of people's relationship with nature into the North American waterfowl conservation enterprise.

In the years ahead, the waterfowl management community must build on past accomplishments and be responsive to the important short and long-term challenges it faces. The 2018 Plan Update notes that looming threats to habitat function and capacity underscore the need for increased efforts for habitat securement and restoration.

Given the historical wetland loss there is significant need for wetland conservation in Canada to help maintain North American waterfowl production and other species conservation. Therefore, the Canadian North American Wetland Conservation Council (NAWCC (Canada)) has embraced a new Strategic Plan for 2020-2030 and established a vision that:

> ***Canada has abundant and resilient wetlands that are sustained and valued, and whose health and maintenance contribute to waterfowl and wetland-dependent species conservation, as well as broader biodiversity and environmental objectives.***

The mission is:

> ***To advance the conservation of Canada's wetlands and wetland-dependent species, through sound science, appropriate governance, partnerships, communications, and other conservation mechanisms in general, and through achievement of the North American Waterfowl Management Plan (NAWMP) in particular.***

The North American partnerships established to implement the NAWMP, and the commitment of all the partner government agencies, non-governmental organizations, and other private entities, have made significant progress toward achieving the objectives of the NAWMP. Over the past thirty-five years, the understanding of the relationships between habitat conditions and breeding waterfowl populations has increased substantially, based on the scientific undertakings of NAWMP partners. However, the habitat conservation needs for breeding waterfowl are much greater than thought at the outset of the NAWMP in 1986. Across the continent, partners are faced with the reality of continued loss and degradation of critical breeding waterfowl habitats – loss of wetlands and the associated uplands. Of particular concern is the recent loss of native grasslands due to lower cattle prices, increased commodity prices for grain crops, and changes in energy policies in Canada and the United States.

Since European settlement, wetland conversion to agriculture in Canada is estimated at over 50 million acres, which includes:

- 65% of the coastal salt marches of Atlantic Canada,
- 68% of southern Ontario wetlands,
- 40-71% of the Prairies (variable with area, time, survey technique), and
- 70% of the Pacific estuary marshes, including 8% in the Fraser River Delta.

Although wetland conversion has occurred across Canada, the prairie pothole region is of particular importance for waterfowl production in North America, and therefore the Fall Flights program. Declines in bird populations in the Canadian Prairies are most commonly attributed to the loss and fragmentation of grassland and wetland habitats through conversion to agricultural uses – now covering approximately 93% of the land area of the Prairie-Parklands. Oil and gas development, urban and industrial development, and mining further contribute to native grassland and wetland habitat loss. Overarching these persistent threats, climate change is a growing conservation concern. Several grassland birds and shorebirds of high conservation priority are highly vulnerable to climate change.

The new Implementation Plan of the Prairie Habitat Joint Venture (PHJV), currently under review, represents the first time the PHJV has included quantitative targets for grassland bird habitat conservation. According to the PHJV (2021), the Canadian prairie region contains an estimated 25 million acres of remaining native grassland—a habitat critical to many grassland birds. Native grasslands declined by ~10% within the PHJV from 1985–2001 and by ~4% from 2001–2011. Recent analysis suggests native grassland loss accelerated from 2011–2017. Thus, despite significant gains in the area of perennial grassland cover during 1986–2011, loss of remaining areas of native grassland has been continual. As of 2016, landscape composition of the prairie-parklands was approximately 49% annual tillage cropland, 29% grasslands (~17.6% native), 11% trees/shrubs, 7% water/wetland, and 4% urban/bare. Total cropland area is expected to expand a further 5% by 2040 based on the predicted influence of climate change and economics on land use change in prairie Canada.

Defining priority areas for non-game species has identified opportunities for other birds to benefit from waterfowl-based conservation activities in the PHJV's Waterfowl Target Landscapes. Any work that conserves or restores grasslands or wetlands in Waterfowl Target Landscapes will likely benefit non-waterfowl species. The PHJV's overarching goals for habitat retention are to stem the loss of wetlands and to retain all remaining native grasslands given their practically irreplaceable nature and critical habitat value for several species at risk. The PHJV's combined restoration and retention objectives for waterfowl total 321,000 acres of wetlands and 1,196,000 acres of upland habitat during 2021–2025. Grassland retention objectives for landbirds during 2021–2025 total 1,101,800 acres of which approximately 33% may be achieved through waterfowl-targeted programs.

The commitment of Canadian Joint Venture partners toward habitat protection and conservation has, and will, influence important wetland and landscape policies that will ensure ongoing conservation and protection of the critical waterfowl habitat resources. In the face of ongoing loss of wetlands and the associated upland habitats, and the continuing threats to our collective ability to achieve the goals of the NAWMP, there is a growing urgency for the continental partnership working on behalf of waterfowl conservation to protect and restore important waterfowl habitats in Canada. Continued and expanded support from state fish and wildlife agencies and other US partners will be critical for the future success of the NAWMP.

Based on information currently available, over the interim 5-year period of 2021-2025, Canadian Joint Ventures will need to collectively conserve over 4 million acres of habitat to work toward attaining the current NAWMP waterfowl population goals. The estimated cost is $1 billion (Canadian). Over the longer term of 2021-2041, it is estimated that Canadian Joint Ventures will need to conserve almost 14 million acres of waterfowl habitat and funding in the amount of $5 billion (Canadian) will be necessary to achieve these goals (an additional 4.4 million acres at a cost of $2.5 billion will be required for Prairie grassland bird conservation). While Canadian NAWMP partners are proud of the significant accomplishments made to date, they recognize that much more remains to be done in Canada. If the vision of the NAWMP is to be achieved for North American waterfowl populations, government agencies, conservation organizations, hunters and other waterfowl enthusiasts need to increase their current conservation efforts.

Funding Habitat Conservation in Canada and NAWCA

One of the greatest challenges to implementing the NAWMP is the identification of funding sources. The initial estimate was that $1.5 billion would be required to achieve the NAWMP's habitat conservation goals. However, that daunting figure was drastically underestimated, and it has always been clear that significant, ongoing commitments of funding are required if North American waterfowl populations and the tradition of waterfowling are to be maintained. The "First Step" projects helped prove that the partnership approach to funding NAWMP objectives could work on a continental basis. Longer term funding became available when Congress appropriated funds through the North American Wetland Conservation Act (NAWCA) beginning in 1991.

The NAWCA appropriated funds, to a maximum of $40 million, are distributed in Mexico, Canada, and the United States with a current allocation of 5%, 45%, and 50%, respectively. Appropriated funds over $40 million all remain in the United States. (Migratory Bird Treaty Act fines resulting from the Gulf spill were allocated 3%, 27%, and 70%, respectively.) The NAWCA was most recently reauthorized at $60 million for FY 2021 through FY 2025 in December 2020 by means of the American Conservation Enhancement Act (or ACE Act). The highest appropriation was $47.6 million in 2010, and since then annual appropriations have ranged between $33.6 million and $46.5 million.

Every federal dollar provided by the NAWCA must be matched by at least one dollar from non-federal sources. Non-federal funds are provided by state wildlife agencies, conservation organizations, private sources, and others. In 2010, for the first time since its inception, the NAWCA allowed Canadian funding sources to count toward the non-federal match required by Congress. On a continental basis, the NAWCA has provided $1.83 billion in federal grants and facilitated the conservation of over 30 million acres of wetlands and associated habitats in all 50 states, Canada, Mexico, Puerto Rico and the U.S. Virgin Islands. More than 6,350 partners have been involved and they have invested over $3.75 billion in matching funds. Over $1.1 billion in NAWCA funds have been matched with almost $3 billion for waterfowl and wetland conservation projects in every state (Table 1). Because of the success of the NAWMP, state agencies, AFWA, and many other conservation organizations throughout North America invest in NAWCA projects, support the continued funding of NAWCA, and work together to support Congressional appropriations for wetlands conservation throughout North America.

At the end of 2020, 12.5% of Canada's land and freshwater was conserved and it is estimated that Canada will conserve 17% of its lands and freshwater by 2023 with the completion of projects already underway and of announced projects. The Government of Canada is committed to conserving 25 percent of Canada's land and 25 percent of its oceans by 2025. As an example, the National Wetland Conservation Fund, administered by Environment and Climate Change Canada, supported on-the-ground activities to restore and enhance wetlands from 2014 to 2018. Approximately $25.5 million (Canadian) in federal funding was expended to restore over 6,400 acres of wetlands and associated uplands and over 840,000 acres of wetland and associated upland habitat were enhanced. As part of Canada's Budget 2018, five-hundred million dollars (Canadian) were allocated to the Canada Nature Fund, as part of the historic Nature Legacy initiative which will invest $1.3 billion in nature conservation.

The Canada Nature Fund is providing $20 million (Canadian) over four years for implementation of the North American Waterfowl Management Plan and requires matching funds from philanthropic foundations, corporate, not-for-profit, provincial, territorial, and other partners. The funds are an important part of the federal government's commitment to protect Canada's natural landscapes by working together with partners to implement the North American Waterfowl Management Plan. Since 1986, over $2.7 billion (Canadian) has been invested in wetland conservation in Canada under the auspices of the North American Waterfowl Management Plan. This investment has resulted in over 27 million acres of wetlands and associated uplands habitat being conserved in Canada.

Photo credit: fDale Humburg ©

State Agency Funding of Waterfowl Habitat Projects in Canada

Investments by state fish and wildlife agencies through the Association's Fall Flights program are critical for initiating US matching investments by organizations such as Ducks Unlimited Inc. and Delta Waterfowl. Annual investments by state agencies through the Fall Flights program over the period 2017 to 2020 averaged approximately $3.7 million or $4.5 million (Canadian) and had a significant influence on investments in waterfowl habitat by Canadian federal and provincial governments. For example, over the period 2017 to 2021, provincial government investments in NAWCA projects averaged $8.1 million (Canadian) per year and similar federal government investments averaged $13.1 million (Canadian) per year. State investments through the Fall Flights program also help to leverage other US and Canadian investments and are especially critical for securing NAWCA funding.

State agencies in 1991, committed to contribute up to $10 million per year to projects on the Canadian breeding grounds. However, their collective investment has never exceeded $3.7 million in a single year and has only averaged $2.85 million per year. The state agencies invested just over $2.0 million in 1991 and they have increased their investment by an average of 2.14 percent per year. Meanwhile the US and Canadian inflation rate has averaged 2.4 percent per year from 1990 to 2020. The cost of land (purchase or easement) has increased at 4.27 percent per year—almost double the inflation rate for goods and services. For example, the average price of conservation land in Saskatchewan in 1990 was approximately $312 per acre and in 2021 the average price increased to $1093 per acre—this upward trend is likely to continue.

Photo credit: Cam Meuckon, Manitoba Government

In other words, today's land prices are 3.5 times higher and operational costs of conservation are 2.1 times higher than in 1990. The bottom line is that the Fall Flights program essentially has not grown since the program began. State agency investments in Canadian habitat have not kept up to inflation, and unfortunately as land prices and easement rates increase, fewer and fewer wetland acres can be conserved each year.

The cumulative investment by state agencies of $85.5 million since 1991 (Table 2) is impressive and has had a significant impact on the Canadian breeding grounds, however it is less than 30% of the program's goal. The program's annual goal is allocated among the states to help stimulate discussion and action based on the potential benefits each state's waterfowl hunters receive from investments in the breeding grounds. Given that many other migratory species use the same landscapes as waterfowl, state residents receive many benefits beyond those of the hunting community. For example, Canadian partners undertake activities such as wetland securement and enhancement, upland securement, and upland enhancement that benefit many bird species (Table 3) that are identified in State Wildlife Action Plans. State agency goals and investments through Fall Flights are motivated by the NAWMP waterfowl and habitat objectives, but the benefits derived from these investments go far beyond these initial intentions.

Task Force Reviews/Analyses

2016 Action Plan Review (risk / benefit analysis)

As noted previously, the Association and its state members have committed to a goal for states to collectively contribute up to $10 million per year to NAWMP projects on the Canadian breeding grounds. However, the goal has not yet been achieved and the need for breeding habitat remains vitally important for the future of waterfowl hunting and viewing in the United States. The Association developed an Action Plan that looked toward the future needs for waterfowl production in North America in 2016. The Action Plan, intended for 2016 to 2021, outlined an approach to coordinate the efforts of Canadian and U.S. partners to retain and restore waterfowl habitat in the breeding grounds through what is now called the Fall Flights program.

The Action Plan envisioned building support from hunting and non-hunting groups in the U.S. to realize the plethora of benefits from the conservation of wetlands in Canada. Moreover, the Action Plan was structured to help state fish and wildlife agencies and their partners take action to achieve the Association's $10 million annual goal. The Action Plan was also intended to be an "evergreen" document that is updated as actions are undertaken, new information becomes available, or as issues/situations change over time. The AFWA President's charge to the 2020 Fall Flights Task Force requested that a review of the progress made toward implementing the "*2016 Action Plan for State Contributions to NAWMP/NAWCA Projects in Canada*" be undertaken. The Task Force was instructed to identify which actions, if any, should continue and identify new actions that should be taken.

The Fall Flights Task Force reviewed the twenty-three actions identified in the 2016 Action Plan and undertook a benefit-risk assessment of the actions. Each member of the Task Force independently scored the benefit and risk for each action using a scale of 0 (no benefit or no risk) to 10 (very high benefit or very high risk). "Benefit" was defined as the degree to which the particular action would help to inform state fish and wildlife agencies about the Fall Flights program and ultimately increase investments toward achieving the $10 million annual goal. "Risk" was defined as the real or perceived risk of the particular action not resulting in state fish and wildlife agencies investing or participating in efforts to achieve the $10M annual goal. The benefit and risk scores for each of the 23 actions were averaged (Table 4) and plotted (Figure 4) to identify actions that should be continued or enhanced, and those actions that are deemed complete or should be discontinued.

The action items falling within the green sphere (Figure 4) are considered to provide a high benefit (return) while having a low risk for implementation. In other words, these actions would be more beneficial for increasing state agency understanding of and investing in the Fall Flights program. These eleven high-benefit/low-risk actions were reviewed in detail by the Task Force and improved by consolidating similar actions to afford greater focus. The resultant new action statements are presented in Table 5 and remain within the four the action themes identified in the 2016 Action Plan:

(1) State Agency Stewardship
(2) Outreach and Communication
(3) Increasing Funding
(4) Biological Connectivity

These overarching themes help to identify the need to develop appropriate information about the program and its benefits, and how the information can be communicated to the diverse audiences that will support the funding initiatives or who will benefit from the program.

Segmentation of States for Improved Communications

The Fall Flights Task Force desired to classify states into distinct segments to better understand historic patterns of Fall Flights investments by state fish and wildlife agencies and to help identify clusters of states to develop specific marketing and communication strategies. On behalf of the Task Force, Emily McCallen (Biometrician, Indiana Department of Natural Resources) undertook a clustering analysis to define segments using a series of independent variables related to the importance of waterfowl, spending priorities, and state and fish and wildlife agency characteristics. There were twelve variables that were determined to be of potential significance and were included in the clustering analysis (Table 6).

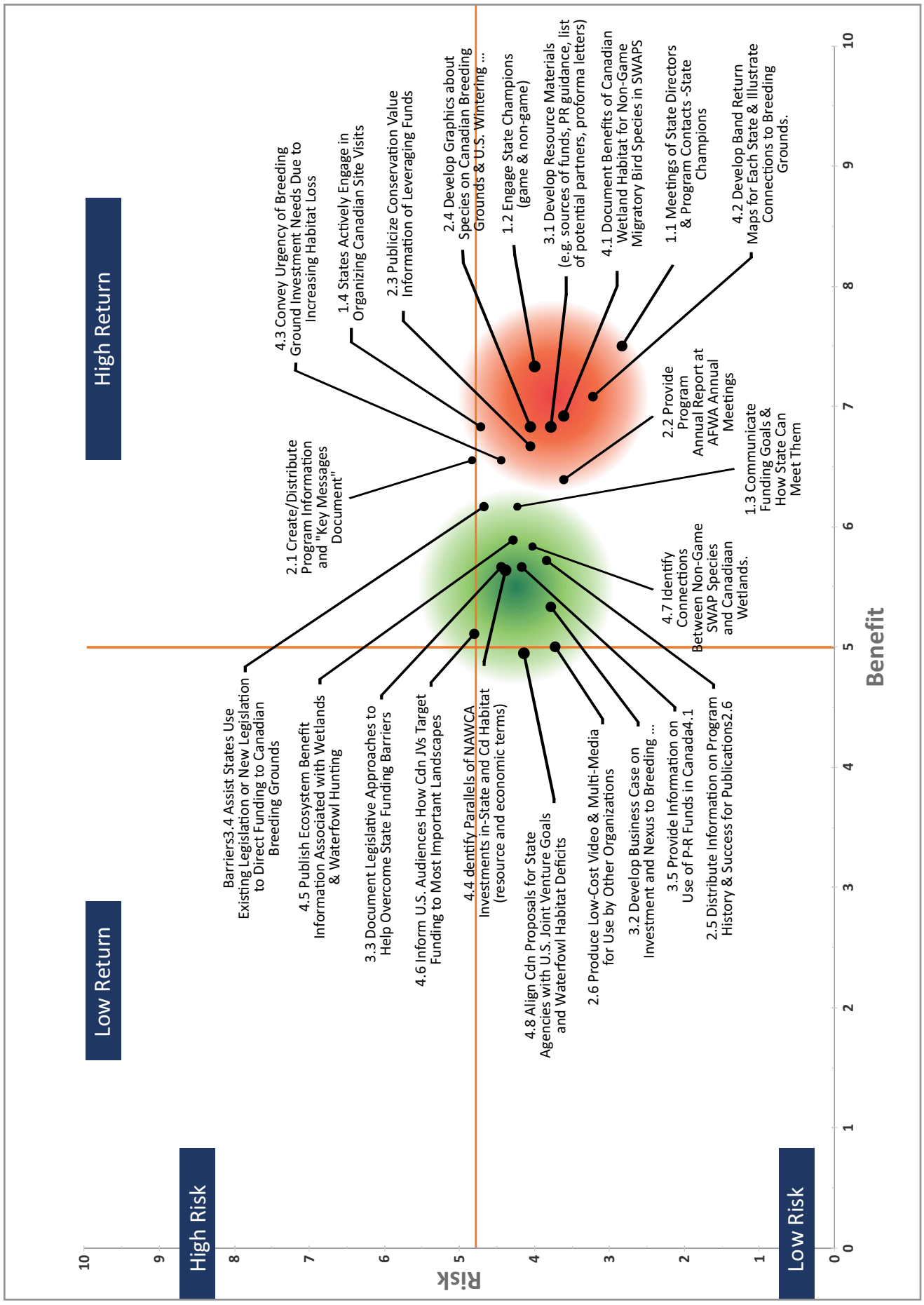


Figure 4: Benefit-Risk of 2016 Fall Flights Action Plan Items

State Group (Cluster) Identities

The results of a clustering analysis (see methodology in Appendix F) identified six groups of states and their common characteristics (Table 7). Understanding these common features among states will assist in developing unique messages and communication tactics that can be better targeted toward the information needs of the state fish and wildlife agencies within each group. Improving communications about the Fall Flights program, such as its goals, mechanisms for states to invest in Canadian waterfowl breeding grounds, non-waterfowl benefits of the program, and the habitat conservation achievements of the program has been a long-term goal of the Association. In combination with the results of the Director/Wildlife Chief survey, the clustering analysis will be an invaluable tool for the Fall Flights program.

Directors/Wildlife Chiefs Survey

In 2011, the Task Force on State Contributions to Canada identified that it was not clear why investments by states in Canadian habitat were lower than expected and they conducted a survey fish and wildlife agencies to explore some of the reasons and to help identify what could be done to improve the situation. At the time only about 30 states were investing in Canadian projects each year and 32% indicated they were experiencing impediments to contributing funds to waterfowl projects in Canada. Analysis of the responses to the survey (n=30) indicated that 13% of the states anticipated that their contributions would decline over the next five years, while the same percentage believed that they would contribute more. True to the survey results, many more states became involved in the Fall Flights program and in 2020, 43 states invested $3.7 million dollars—a record number of states and the second highest annual investment.

Like previous Task Forces, the 2020 Fall Flights Task Force wanted to know more about the state agencies' understanding of the program, information needs, reasons for participating in the program, and/or why agencies were not investing at their full goal. A survey of state directors and wildlife chiefs was distributed in March 2021 and 42 responses were received from 34 states. Seventy-one percent (71%) of respondents indicated they were familiar or extremely familiar with the Fall Flights program and its $10 million goal, however, 17% were not aware that each state had a specific monetary goal. A key element for communicating within state agencies is whether they have a champion that advocates strongly for the Fall Flights program, and 68% of the responding states do have a designated champion. The waterfowl program manager is the champion in 27% of the responding states, and the director or assistant director serve this role in 22% of the states and the wildlife chief in 19%.

When asked to identify the reasons that motivate an agency to participate in the Fall Flights program and to invest in waterfowl breeding habitat in Canada, the three most common responses were: (a) state commitment to flyway/migratory bird initiatives (29%); (b) state relies on Canadian breeding habitat for waterfowl production (26%); and (c) wildlife/waterfowl chief recommends investment in Canadian habitat (20%). Most often state agency participation in the Fall Flights program is directly linked to their waterfowl program (42%) or their wildlife program (24%). The amount of the annual financial investment in Canadian habitat is often directly linked to the agency's duck/habitat stamp program budget (39%) or wildlife program budget (24%).

Directors and wildlife chiefs were asked what the main reasons were for not investing in Canadian waterfowl breeding habitat at the full level of their AFWA goal. Competing budget priorities was identified as the main reason 47% of the time, while insufficient biological information, lack of support from Commission or state government, and insufficient information to determine a return on investment were each identified as key reasons about 5% of the time. Program or agency budget limitations are the top barrier to state fish and wildlife agencies increasing their investments in the Fall Flights program (57%). Not seeing value for the agency was identified as the main barrier by 11% of respondents. Lack of Commission support, legislation or policy affecting investments outside the state, and lack of agency support were each identified by about 6% of respondents.

Finally, when asked what would help agencies to overcome barriers to investing in the Fall Flights program, 26% identified information about the biological benefits, 14% indicated they would like more information on how their investment is leveraging more private and public funds, 13% requested more information on waterfowl habitat and waterfowl production in Canada, and 12% suggested visiting the breeding grounds to interact with program deliver staff would be very beneficial. The survey results are presented in tabular format in Appendix E.

Photo credit: Dale Humburg

New Fall Flights Goals for States

The original $10 million annual goal was based on an estimate of the states' reasonable and collective share of the funding necessary to achieve the NAWMP's 1986 objectives within a 15-year planning horizon. In 1991, the Association's NAWMP Implementation Committee (now the Bird Conservation Committee & Waterfowl Working Group) elected to use hunter numbers and harvest data from the 1980s to derive the 1991 apportionment of the $10 million goal. The 2011 Task Force updated each state's goal based on hunter and harvest data over the 40-year time frame of 1970 to 2009 (Appendix D).

The 2020 Fall Flights Task Force was charged to update the allocation of the Fall Flights goal for each state based on new hunter and waterfowl harvest data, and review the methodology used to make the allocations, if deemed appropriate. After consideration of incorporating elements for non-hunting waterfowl benefits (e.g., waterfowl viewing) and benefits to other outdoor recreation, the Task Force concluded that simply updating the allocation of the Association's $10 million goal based on hunter and harvest data was the most appropriate course of action. Hunter numbers and duck harvests are relevant and comparable across all states, and waterfowl hunters are the primary beneficiaries of the Fall Flights program. Attempting to formulate a new methodology from other sources of inconsistent data would be undesirable and likely provide inequitable results.

The Task Force compiled data on active duck hunters and the duck harvest in each state for the timeframe of 1970 to 2019 and present only the decadal means in Table 8. Several approaches and data weighting methods were evaluated early in the review process, and it was concluded that the equal weighting of the mean of active waterfowl hunter numbers and duck harvest over the period of 2000 to 2019 best reflected the benefits derived by hunters in each state. The more "modern" period of 2000 to 2019 better reflects the recent trends of fewer waterfowl hunters but higher duck harvests (Figure 3) and was deemed to be the most justifiable timeframe to calculate the apportionment of each state's Fall Flights program goal. The recommended apportionment of the $10 million goal among states is shown in Table 9.

New Fall Flights Canadian Federal and Provincial Goals

Canadian federal and provincial governments are significant contributing partners in the Fall Flights program and collectively invest on average $21.2 million (Canadian) per year in NAWCA projects. These annual investments of $8.1 million (Canadian) by provinces and $13.1 million (Canadian) by the federal government provide matching funds for NAWCA grants, along with state fish and wildlife agency, Ducks Unlimited Inc., Delta Waterfowl and other private funding sources.

One of the objectives of the Fall Flights Task Force is to identify means to increase the overall investment in Canadian breeding ground habitat by encouraging state fish and wildlife agencies to maximize their investments. As states increase their investments, additional Canadian funding will also be essential to meet the 1:1 match requirement of NAWCA. Therefore, the Task Force undertook a review of provincial and federal NAWCA investments with an aim to establish investment goals like the Fall Flights goals for each state. Data were collected from Ducks Unlimited Canada (DUC), the Nature Conservancy of Canada (NCC), and Manitoba Habitat Heritage Corporation (MHHC) who were the three Canadian NAWCA grantees active during the review period of 2017 to 2021. The Nature Trust of British Columbia (NTBC) has subsequently become a Canadian NAWCA grantee and member of NAWCC (Canada).

The average annual investment (NAWCA match) by the federal government and by each provincial government was calculated for the review period, and the ratios of their investments relative to the 2020 investment by state fish and wildlife agencies was determined. These ratios were used to estimate the future need for Canadian match, assuming the same relationships of federal and provincial government match to state match would be maintained as states strived to increase their investments toward the AFWA $10 million goal. Using this methodology, the projected need for provincial match (collectively) would grow to $11.1 million if states achieved an interim goal of $5 million (US) and $22.2 million if states reached the full $10 million (US) AFWA goal. Similarly, the need for Canadian federal government match would grow to $17.8 million and $35.7 million (Canadian), respectively.


Photo credit: Dale Humburg

The total provincial match goals can be broken down for each province, and the federal goals can be disaggregated into regional goals focused on the four habitat Joint Ventures in Canada (Eastern Habitat Joint Venture (EHJV), Prairie Habitat Joint Venture (PHJV, which includes the Western Boreal Forest-WBF), Canadian Intermountain Joint Venture (CIJV) and the Pacific Birds Habitat Joint Venture (PBHJV)). The NAWCC (Canada) uses a programmatic approach based on science and other sources of knowledge (including traditional and Indigenous knowledge) to ensure that the most meaningful, cost efficient, and highly targeted NAWCA investments are made in Canada in support of the NAWMP goals.

NAWCC (Canada) established funding guidelines for the Joint Ventures based on waterfowl and wetland dependent bird population density in each jurisdiction such that NAWCA funds are invested in a way that maximizes the impact on bird populations. Criteria included:

1. Biological importance by area for each wetland-associated bird group
2. Historic habitat loss
3. Future threats to habitats
4. Availability of solutions (degree of certainty of problems and how to fix them)
5. Cost effectiveness of conservation actions
6. Eligibility of conservation actions for funding within NAWCA guidelines

The resultant allocation of NAWCA funding is that 70% of funding is allocated to the PHJV with an additional 3% going to the Boreal, 17% is apportioned to the EHJV and 10% to the PHBJV/CIJV combined. The original science behind these allocations is presented in the "Final report on NAWCA Funding Allocations" prepared by a task force in 2004 and following an analysis in 2011, NAWCC decided to continue with the 2004 allocation recommendations. The Fall Flights

Task Force adopted this science-based approach for funding allocations to establish the goals for the federal government and provinces. The current Canadian federal and provincial NAWCA match and the new Canadian Fall Flights goals for NAWCA match are presented in Table 10.

Fall Flight Governance

In many governance models, a hierarchical structure of decision making, planning and ownership is established. The primary intent of establishing a formal governance structure for the AFWA Fall Flights program is to realize the funding goal and undertake promotion and awareness of the program and the resulting waterfowl habitat accomplishments. Most governance options include program/project champion(s) or "sponsors" who are senior officials and/or users, a steering committee, and often a staff person like a Program Manager. Under a consultative governance model, executives and senior managers who are stakeholders for some aspect of the programs defined outcomes should be engaged. Their role is to understand issues and needed changes, provide advice and assessment of potential impact, and make needed adjustments within their own areas of responsibility.

Consultative and advisory models are similar, but the key difference is that in a consultative model, each "business segment" (i.e., state) has significant ownership of the work effort and its results within that segment. In contrast, within the advisory model, ownership is diminished, and information is carried back to the business segment, and any decisions, adjustments, and issue resolutions are expected to conform to the direction provided by the program governance body. The Fall Flights Task Force considered the governance models and concluded that the consultative model would be best for the Fall Flights program.

The Task Force further considered how best to structure a Fall Flights Advisory Committee under the consultative governance model. In general, program sponsors or champions at the director-level from state fish and wildlife agencies and non-government agencies that receive funding from the Fall Flights program should oversee the program. There should be representation from each of the regional associations, from at least one Canadian province, and from the National Flyway Council (NFC). Additionally, the chair of the Association's Waterfowl Working Group and staff or contractors working directly with the Fall Flights program should be involved in the Advisory Committee. A Terms of Reference, including an organizational chart, for the recommended Fall Flights Advisory Committee is provided in Appendix C.

Fall Flights Task Force Recommendations

Photo credit: Larry Kruckenberg

RECOMMENDATION #1:

AFWA Goal for the Fall Flights Program — The Task Force recommends that the Association of Fish & Wildlife Agencies (AFWA) reaffirm its commitment to the $10 million annual program goal and that state fish and wildlife agencies endeavor to maximize their investments in furtherance of the goal to collectively increase the required US non-federal match funding for NAWCA projects in the waterfowl breeding grounds of Canada.

The Task Force considered the Association's collective annual goal for state investment in Canadian waterfowl breeding grounds in light of the difficult economic situations of many states resulting from the Covid-19 pandemic and the fact that many states have not been able to contribute at their current target level. It also was recognized that the original $10 million goal was a "stretch" goal which was consistent with the ambitious waterfowl population and habitat goals of the NAWMP. The Task Force acknowledged the updated science-based analysis of the Canadian habitat joint ventures and the determination that 14 million acres of habitat over the next 20 years needs to be conserved , restored, and enhanced in Canada. This recent analysis confirmed that NAWMP partners across the continent need to remain committed to conservation of wetlands and the associated upland habitat in the breeding grounds.

At today's costs, securing the additional habitat in Canada will cost approximately $5 billion (Canadian). The Association's $10 million goal will continue to be a "stretch" goal for states however, it will provide a critical investment to initiate match funding. The Canadian federal government recently announced its largest investment ever in environmental initiatives, including wetlands, and the Canadian NAWMP partners will have to expand their efforts to raise NAWCA matching funds from other sources. If the Association's goal is achieved and every dollar is matched by a US conservation organization, Canadian partners, and NAWCA, this will provide approximately 30 percent of the funds needed for Canadian waterfowl breeding habitat.

The Task Force accepted that some states' goals, particularly the very high waterfowl harvest states, were unnecessarily high and that they would not be able to contribute at the target level. At the same time, some states are contributing above their goal

because of their strong commitment to the NAWMP goals and they have the resources and administrative/political support to continue contributing. The Task Force's genuine desire was to explore ways to help states increase their collective level of contribution over the next five years and to develop a clear action plan to achieve this objective.

The Task Force carefully considered these and other issues and concluded that:

(1) The Canadian NAWMP habitat conservation goals have not been accomplished.

(2) The landscapes in Canada that have been most impacted by loss of wetlands and associated uplands are those most important to continental populations of breeding waterfowl.

(3) The Canadian waterfowl breeding grounds remain at great risk for continued loss and degradation.

(4) U.S. waterfowl hunters and the public receive significant benefits from states investing in the conservation of Canadian habitat,

(5) Investments in wetlands and the associated upland habitat provides significant benefits for other species, including more than 100 species of wetland associated migratory birds.

The habitat conservation needs persist, and the level of urgency remains high. The Task Force believes the Association should continue to support the long-term NAWMP objective and its $10 million goal. Therefore, the Task Force recommends that the Association and its State Agency members reaffirm the commitment to the $10 million annual goal and that states strive to maximize their contributions in furtherance of the goal to collectively increase non-federal match funding for NAWMP/NAWCA projects in Canada.

RECOMMENDATION #2:

Stepwise Interim AFWA Goal — The Task Force recommends that the Association of Fish & Wildlife Agencies (AFWA) adopt a stepwise interim goal of $5 million in annual contributions and 100% participation of state fish and wildlife agencies by 2026. The stepwise interim goal will be achieved as follows:

State fish and wildlife agencies that are currently not investing in the Fall Flights Program develop a plan to participate and reach 50% of their individual goal by 2026.

State fish and wildlife agencies that are currently participating in the Fall Flights Program but are below 50% of their individual goal develop a plan to reach a minimum of 50% of their individual goal by 2026.

State fish and wildlife agencies that are currently participating in the Fall Flights Program and investing over 50% but have not reached their individual goal develop a plan to reach that goal by 2026.

State fish and wildlife agencies that are participating in the Fall Flights Program and are currently investing at or above their individual goal maintain or increase their level of investment.

The Task Force believes the Association should continue to support its long-term $10 million goal while identifying a very achievable interim (5 year) goal for the Fall Flights program. The $10 million goal is aligned with the long-term objectives of the NAWMP and the goal is aspirational in nature. Many state fish and wildlife agencies view their individual goals as unattainable, and sometimes unrealistic, in the short run. In response, the Task Force identified a strategy to set interim program goals to help encourage states to incremental steps toward achieving their individual Fall Flights goals.

The collective investment of states in the Fall Flights program has ranged from $3.6 to $3.8 million over the past five years and is estimated to be approximately $4 million in 2022. The Canadian federal government in 2018 announced an investment of $700 million (Canadian) in nature funding and in the fall of 2020, the Canadian government made a further commitment of $2.3 billion (Canadian) in nature-based funding. Both these investments included major commitments to wetland conservation that can be used in combination with state investments as match for NAWCA projects.

It is reasonable to expect that with additional effort to help states better understand the habitat need and the investments by Canadian wildlife agencies that there is significant opportunity for securing waterfowl habitat in Canada. Additionally, improved communications about the Fall Flights program can demonstrate the return on investment from the program to US hunters and other agency stakeholders. Therefore, the states could realistically increase their investments in Canadian waterfowl habitat and attain the first 5-year, interim goal of $5 million that is recommended by the Task Force.

RECOMMENDATION #3:

Apportionment of the $10 Million Fall Flights Goal Among States — The Task Force recommends that an equal weighting of the percentage of each state's active waterfowl hunters and duck harvest, relative to the national values, be averaged over the period 2000 to 2019 to provide the methodology for establishing new state goals for sharing of the $10 million annual Fall Flights goal.

The original $10 million annual goal was based on an estimate of the states' reasonable and collective share of the funding necessary to achieve the NAWMP's 1986 objectives for its 15-year planning horizon. It was recognized that this was an aggressive objective, however, it was ultimately affirmed by AFWA (IAFWA at the time) as being an important indication of the states' commitment to the NAWMP. The NAWMP Implementation Committee in 1991 looked at hunter numbers and harvest data from the 1970s and 1980s, then ultimately elected to use data from only the 1980s to derive the 1991 apportionment of the $10 million goal. Records do not indicate their rationale, but it is presumed that they believed the 1980s data best reflected conditions at the time. The current Fall Flights Task Force was tasked with considering an update to the states' goals.

There are many factors that impact the extent to which a state is able to contribute to its portion of a shared $10 million goal. While hunter numbers and duck harvests are relevant and comparable across all states, other indicators of the importance of wildlife resources within individual states also come into play. The Fall Flights Task Force considered the option of a new methodological approach for apportionment of the $10 million goal using readily available data and with consideration of numerous other factors. The Task Force reviewed hunter and harvest data for the 1970s, 1980s, 1990s, and the 2000s (Table 8), and compiled new data for the 2010s. It was concluded that the long-term distribution of waterfowl hunters and harvest data best reflected the benefits derived by hunters in each state, however a more modern time period (2000 to 2019) best reflected the current state of waterfowl hunting in the United States. Therefore, based on the analysis of hunter and harvest data, an equal weighting of the average number of hunters and the duck harvest for the period 2000 to 2019 was chosen as the most equitable approach to calculate the apportionment of the Association's $10 million goal to each state.

The Task Force recommends that the Association use this 20-year time frame (2000–2019) as the basis for apportioning the funding goal among the states and the recommended apportionment of the $10 million goal among states is shown in Table 9.

Photo credit: Larry Kruckenberg

RECOMMENDATION #4:

New Canadian Goals for NAWCA Matching Funds — The Task Force recommends that federal and provincial goals for Canadian NAWCA match be established. Goals shall be proportional to the current level of government investment as Canadian NAWCA match, and adjusted for the science-based approach of allocation of NAWCA in Canada as outlined in the NAWCC (Canada) Strategic Plan for 2020-2030. Federal goals will be established at the Joint Venture level and provincial goals established at their respective jurisdictional level.

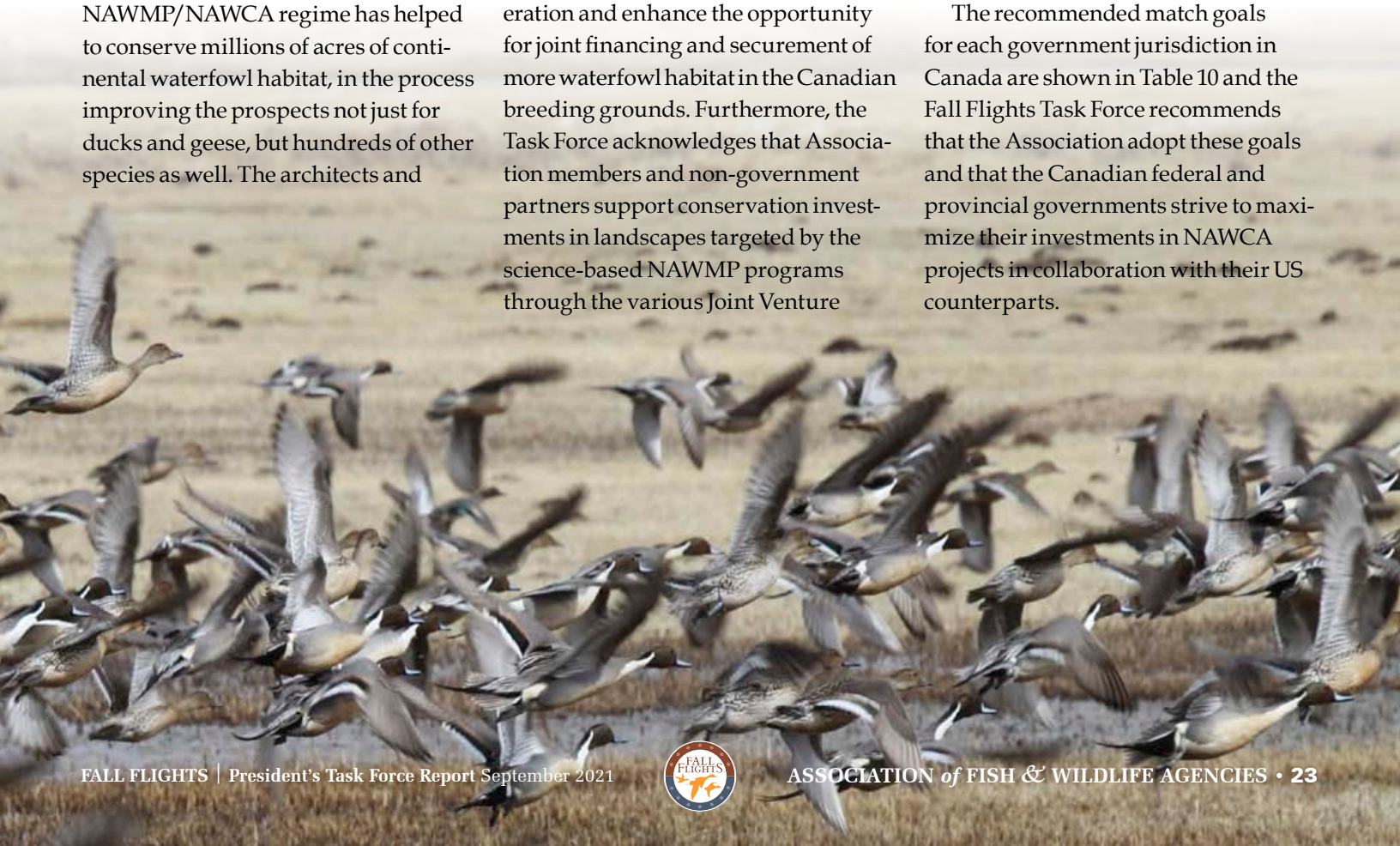
Over the past 20 years, the NAWMP/NAWCA regime has helped to conserve millions of acres of continental waterfowl habitat, in the process improving the prospects not just for ducks and geese, but hundreds of other species as well. The architects and operators of the Plan and funding program have established and legitimated a set of arrangements that transfer hundreds of millions of U.S. dollars to habitat projects across the vast Canadian breeding grounds. This model of international collaboration embodies commitments, norms, and patterns of interaction that promise a future of continued cross-border cooperation.

Since 1991, the NAWCA has provided dedicated funding to support wetland conservation in scientifically targeted areas across the continent, including Canada, with forty-five percent of NAWCA funding specifically earmarked by the United States Congress for Canadian programs. The NAWCA funds require at least a 1:1 match and Canadian federal, provincial, and territorial match funds are critical to attracting funds from state fish and wildlife agencies and other U.S. partners in support of wetland conservation in Canada.

The Fall Flights Task Force desires to advance additional cross-border cooperation and enhance the opportunity for joint financing and securement of more waterfowl habitat in the Canadian breeding grounds. Furthermore, the Task Force acknowledges that Association members and non-government partners support conservation investments in landscapes targeted by the science-based NAWMP programs through the various Joint Venture Implementation Plans as these wetlands have the highest value to waterfowl and wetland dependent wildlife and provide a high rate of return due to their productivity and the dynamic model of match-funding.

The Task Force encourages each state to strive to maximize their investments in Canadian priority landscapes and correspondingly urges the Canadian federal and provincial governments to increase their commitments to invest matching funds. Additionally, the Task Force recommends that the Association and its Canadian government members adopt goals for matching funds. These new goals for Canadian governments are based on the average of their past five years of investments in NAWCA projects and projected forward in accordance with the waterfowl habitat need identified by the Canadian habitat Joint Ventures in their 2021-2025 Implementation Plans, and the science-based funding allocation model outlined by the NAWCC (Canada) Strategic Plan for 2020-2030.

The recommended match goals for each government jurisdiction in Canada are shown in Table 10 and the Fall Flights Task Force recommends that the Association adopt these goals and that the Canadian federal and provincial governments strive to maximize their investments in NAWCA projects in collaboration with their US counterparts.



RECOMMENDATION #5:

Establish Fall Flights Advisory Committee — The Task Force recommends that the AFWA President create a standing Fall Flights Advisory Committee to oversee the implementation of the Fall Flights program and to report annually to the Association's membership, as well as provide guidance and advice to the Association's President and Executive Director. The Advisory Committee members shall be at the state director level (or equivalent for NGOs) and appointed by the AFWA President to operate under a consultative governance structure.

Under its new strategic plan, the Association has committed to facilitate partnerships among member fish and wildlife agencies to leverage existing resources and to maximize the impacts of existing conservation dollars. The Fall Flights program embodies this approach, and the Task Force desires to improve the program's partnership and leveraging models through adoption of a new governance structure. In the past, the Fall Flights program has been guided by the input of intermittently appointed task forces. The Task Force believes that the program would be enriched by adopting a consultative governance model that employs a continuous Advisory Committee to oversee the implementation of the program.

More specifically, the purpose of the Advisory Committee would be to establish the program brand, promote the program, achieve the program's mid- and long-term funding goals, highlight the program outcomes/benefits, and report on program progress to the Association. The membership of the Advisory Committee should be appointed on a term basis and consist of three core groups:

1) Program Champions
2) Program Stakeholders
3) Association/contract staff

Program champions should include state directors as chair and past chair, the chair of the Association's Waterfowl Working Group, and one representative from each of Ducks Unlimited Inc., Ducks Unlimited Canada, and the partnership of Delta Waterfowl/Manitoba Habitat Heritage Corporation. Program stakeholders should include a state director from each regional association, a Canadian provincial or territorial wildlife director, and a National Flyway Council representative. Lastly, the Association's NAWMP Director/Wildlife Liaison (Canada) and the Fall Flights Program Coordinator (see Recommendation #6) should be appointed as members.

The Fall Flights Advisory Committee should be a standing committee to oversee the implementation of the program on behalf of the Association's President and Executive Director. It is further recommended that Advisory Committee members should serve at the call of the Association's President and the chair of the committee would rotate among directors representing the regional associations every two-years. Meetings should be at the call of the chair, with at least two meetings per year and a simple majority of the Advisory Committee would comprise a quorum. A Terms of Reference is provided in Appendix C.

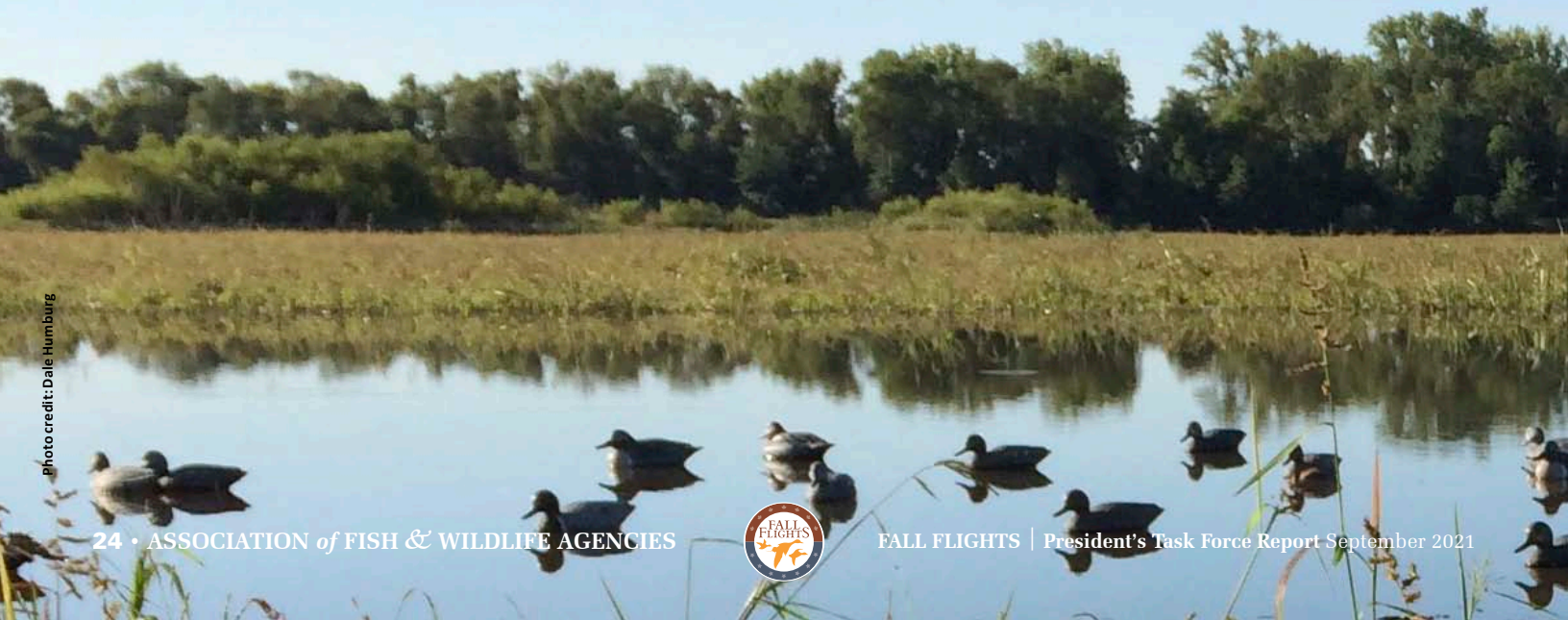


Photo credit: Dale Humburg

RECOMMENDATION #6:

Identify Financial Resources for a Fall Flights Program Coordinator and Other Program Activities — The Task Force recommends that financial resources be identified in the Association's annual budget and matched, at a minimum of one- to- one, by participating non-government partners to support a contract-based Fall Flights Program Coordinator and other program activities.

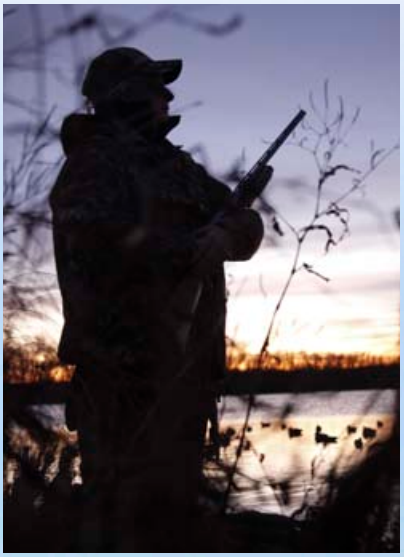


Photo credit: Dale Humburg

The Task Force has identified numerous actions, including the consolidated and prioritized actions from the 2016 Action Plan, that should be undertaken by the Association to enhance the Fall Flights program. Furthermore, resources will need to be dedicated toward a focused effort to effectively implement these actions. Some of the priority action items identified include:

- Development of a communication strategy with key program messages and targeted information for each of the clusters of states identified in this report,
- Creation and distribution of program information and an annual report,
- Coordination of meetings with State Directors and program champions,
- Development of resource materials for state fish and wildlife agencies (e.g., potential sources of funds, PR guidance, list of potential partners, proforma letters),
- Documenting the benefits of Canadian habitat for non-game migratory bird species and the need for investments to protect habitat,
- Assisting states to engage in organizing Canadian site visits, and
- Publicizing the conservation value of leveraging state funds through the Fall Flights program.

The Task Force believes that human and financial resources should be identified by the Association for the Fall Flights program. Ducks Unlimited Inc., Ducks Unlimited Canada and the partnership of Delta Waterfowl/ Manitoba Habitat Heritage Corporation have committed to contribute financial resources for a contract Program Coordinator position that would be managed by the Association and work collaboratively with the NAWMP Director/Wildlife Liaison (Canada) contractor.

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Photo credit: Dale Humburg

TABLES

Photo credit: Dale Humburg

Table 1: North American Wetland Conservation Act (NAWCA) grant expenditures within states by fish and wildlife agencies, the USFWS, and non-government partners

State	US Standard Project Count	US Small Project Count	NAWCA Grant Award Amount	Proposed Match Amount	Rank by NAWCA Grant Amount
Alabama	4	0	$4,000,000	$12,656,142	40
Alaska	6	8	$4,664,097	$11,156,335	39
Arizona	3	7	$1,702,638	$2,992,327	47
Arkansas	15	2	$11,758,451	$27,899,720	30
California	123	60	$116,786,027	$294,319,259	1
Colorado	22	18	$21,276,440	$62,941,726	17
Connecticut	3	8	$2,587,386	$9,989,631	43
Delaware	7	3	$6,016,000	$11,791,498	36
Florida	19	16	$15,555,044	$41,538,068	21
Georgia	12	8	$12,274,711	$52,407,402	28
Hawaii	2	7	$1,954,783	$4,835,438	46
Idaho	15	9	$10,809,357	$34,633,161	31
Illinois	12	25	$8,853,741	$20,735,554	33
Indiana	13	13	$12,989,769	$32,066,313	26
Iowa	34	22	$32,171,662	$77,434,433	10
Kansas	17	8	$13,616,739	$23,135,870	25
Kentucky	2	6	$2,357,776	$4,018,457	45
Louisiana	77	6	$66,516,741	$156,216,759	3
Maine	38	71	$39,774,214	$120,010,750	7
Maryland	15	9	$14,737,627	$52,464,129	22
Massachusetts	17	33	$15,958,608	$43,836,488	20
Michigan	23	32	$20,184,685	$57,422,458	19
Minnesota	53	99	$54,888,131	$167,622,392	5
Mississippi	16	3	$12,922,802	$36,985,795	27
Missouri	23	3	$20,752,526	$71,948,278	18
Montana	30	15	$28,885,033	$81,292,929	12

State	US Standard Project Count	US Small Project Count	NAWCA Grant Award Amount	Proposed Match Amount	Rank by NAWCA Grant Amount
Nebraska	26	9	$22,264,279	$35,217,996	15
Nevada	3	1	$2,418,863	$5,182,851	44
New Hampshire	8	11	$7,801,869	$18,813,171	34
New Jersey	12	12	$13,887,913	$45,038,593	24
New Mexico	6	5	$5,417,100	$13,385,695	37
New York	15	26	$12,218,744	$36,165,420	29
North Carolina	26	9	$24,322,659	$70,050,379	13
North Dakota	85	8	$68,700,070	$79,607,226	2
Ohio	14	24	$9,961,320	$32,164,313	32
Oklahoma	11	2	$4,966,000	$10,312,867	38
Oregon	25	20	$21,660,553	$43,794,416	16
Pennsylvania	1	15	$1,351,565	$4,209,257	48
Puerto Rico	1	3	$1,212,000	$2,627,557	49
Rhode Island	9	2	$6,600,433	$23,548,831	35
South Carolina	48	24	$50,202,981	$242,778,581	6
South Dakota	46	7	$38,400,127	$49,687,633	9
Tennessee	17	22	$14,124,027	$49,527,953	23
Texas	65	41	$58,870,362	$118,171,951	4
Utah	4	6	$3,710,611	$7,525,276	41
Vermont	1	1	$1,050,000	$4,787,250	50
Virgin Islands	1	0	$500,000	$1,000,000	51
Virginia	27	6	$23,142,860	$60,643,353	14
Washington	30	39	$29,630,685	$70,820,997	11
Wisconsin	38	75	$39,089,338	$100,962,493	8
Wyoming	3	11	$2,886,842	$5,822,404	42
GRAND TOTALS	1,123	870	1,018,386,189	2,644,197,772	n/a

Notes:

An additional $103,641,340 of NAWCA grants and $270,130,600 of matching funds have been allocated to multi-state projects, and are not included in the above table

Total NAWCA grant, match, and non-match investments in the states as of 2020 are $5,200,504,490

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Table 2: Cumulative State Investments in Canadian Waterfowl Breeding Habitat (1991-2020)

State	Cumulative Investment 1991-2020
Alabama	$ 1,651,013
Arizona	$ 400,000
Arkansas	$ 7,480,000
California	$ 8,741,043
Colorado	$ 744,647
Connecticut	$ 84,000
Delaware	$ 1,229,579
Florida	$ 570,000
Georgia	$ 128,000
Idaho	$ 468,400
Illinois	$ 12,251,015
Indiana	$ 914,742
Iowa	$ 722,379
Kansas	$ 729,707
Kentucky	$ 1,125,000
Louisiana	$ 7,757,955
Maine	$ 25,000
Maryland	$ 17,500
Massachusetts	$ 1,553,280
Michigan	$ 105,000
Minnesota	$ 1,811,220
Mississippi	$ 1,968,985
Missouri	$ 6,790,538
Montana	$ 75,000

State	Cumulative Investment 1991-2020
Nebraska	$ 1,606,000
Nevada	$ 180,000
New Hampshire	$ 65,000
New Jersey	$ 549,500
New Mexico	$ 20,000
New York	$ 698,732
North Carolina	$ 1,178,250
North Dakota	$ 490,000
Ohio	$ 4,425,692
Oklahoma	$ 1,918,000
Oregon	$ 243,500
Pennsylvania	$ 283,660
Rhode Island	$ 20,000
South Carolina	$ 1,599,997
South Dakota	$ 310,000
Tennessee	$ 3,706,000
Texas	$ 4,709,540
Utah	$ 170,000
Vermont	$ 241,337
Virginia	$ 324,500
Washington	$ 45,000
West Virginia	$ 343,200
Wisconsin	$ 4,792,528
Wyoming	$ 230,000

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Table 3: Benefits of enhancement and securement activities to bird species from select conservation activities in the Canadian Prairies (adapted from: Ducks Unlimited Canada, 2019)

Activity	Species That Will Benefit
Upland Enhancement	
Convert crop to hay, delay hay, DNC*	Black Tern, Le Conte's Sparrow, Mallard, Lesser Scaup, Northern Pintail
Convert crop to pasture	Black Tern, Buff-breasted Sandpiper, Marbled Godwit, Piping Plover, Mallard, Lesser Scaup, Northern Pintail
Convert hay, pasture to DNC	Black Tern, Le Conte's Sparrow, Sedge Wren, American Wigeon, Mallard, Lesser Scaup
Wetland Securement & Enhancement	
Convert crop, hay, pasture to wetland (Class 2 to 6) OR Secure wetland (Class 2 to 6)	Class 2 Wetland (ephemeral): Black Tern, Buff-breasted Sandpiper, Marbled Godwit, American Wigeon, Mallard
	Class 3 Wetland (seasonal): Black Tern, Buff-breasted Sandpiper, Horned Grebe, Le Conte's Sparrow, Marbled Godwit, Nelson's Sparrow, Pied- billed Grebe, Sedge Wren, Yellow Rail, American Wigeon, Canvasback, Lesser Scaup, Mallard, Northern Pintail
	Class 4 Wetland (semi-permanent): American Bittern, Black Tern, Buff-breasted Sandpiper, Horned Grebe, Le Conte's Sparrow, Lesser Yellowlegs, Marsh Wren, Nelson's Sparrow, Pied-Billed Grebe, Semi-palmated Sandpiper, Solitary Sandpiper, American Wigeon, Canvasback, Lesser Scaup, Mallard, Northern Pintail, Redhead, Ring-necked Duck
	Class 5 Wetland (permanent): American Bittern, Black Tern, Lesser Yellowlegs, Pied-billed Grebe, Semi-palmated Sandpiper, Solitary Sandpiper, American Wigeon, Canvasback, Lesser Scaup, Mallard, Redhead, Ring-necked Duck
	Class 6 Wetland (lakes): Lesser Yellowlegs, Piping Plover
Upland Securement	
Idle of previously grazed	Black Tern, Le Conte's Sparrow, Sedge Wren, American Wigeon, Mallard, Lesser Scaup
Securement of idled natural	Black Tern, Le Conte's Sparrow, Sedge Wren, American Wigeon, Mallard, Lesser Scaup
Securement of grazed natural	Black Tern, Buff-breasted Sandpiper, Marbled Godwit, Piping Plover, Mallard, Northern Pintail

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Table 4: Task Force Assessment of Benefit-Risk of 2016 Action Plan Items

	Action Item	Benefit	Risk
State Agency Stewardship	Meetings of State Directors & Program Contacts - State Champions	7.5	2.8
	Engage State Champions (game & non-game)	7.3	4.0
	Communicate Funding Goals & How State Can Meet Them	6.2	4.2
	States Actively Engage in Organizing Canadian Site Visits	6.8	4.7
Outreach and Communication	Create/Distribute Program Information and "Key Messages Document"	6.6	4.8
	Provide Program Annual Report at AFWA Annual Meetings	6.4	3.6
	Publicize Conservation Value Information of Leveraging Funds	6.7	4.1
	Develop Graphics about Species on Canadian Breeding Grounds & U.S. Wintering Grounds	6.8	4.1
	Distribute Information on Program History & Success for Publications	5.7	3.8
	Produce Low-Cost Video & Multi-Media for Use by Other Organizations	5.0	3.7
Increasing Funding	Develop Resource Materials (e.g. sources of funds, PR guidance, list of potential partners, proforma letters)	6.8	3.8
	Develop Business Case on Investment and Nexus to Breeding Grounds	5.3	3.8
	Document Legislative Approaches to Help Overcome State Funding Barriers	5.7	4.4
	Assist States Use Existing Legislation or New Legislation to Direct Funding to Canadian Breeding Grounds	6.2	4.7
	Provide Information on Use of P-R Funds in Canada	5.7	4.2
Biological Connectivity	Document Benefits of Canadian Wetland Habitat for Non-Game Migratory Bird Species in SWAPS	6.9	3.6
	Develop Band Return Maps for Each State & Illustrate Connections to Breeding Grounds.	7.1	3.2
	Convey Urgency of Breeding Ground Investment Needs Due to Increasing Habitat Loss	6.6	4.4
	Identify Parallels of NAWCA Investments in-State and Cd Habitat (resource and economic terms)	5.6	4.4
	Publish Ecosystem Benefit Information Associated with Wetlands & Waterfowl Hunting	5.9	4.3
	Inform U.S. Audiences How Canadian JVs Target Funding to Most Important Landscapes	5.1	4.8
	Identify Connections Between Non-Game SWAP Species and Canadian Wetlands.	5.8	4.0
	Align Canadian Proposals for State Agencies with U.S. Joint Venture Goals and Waterfowl Habitat Deficits	4.9	4.1

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Table 5: New Fall Flights Action Items and Priority Ranks

	Action Description	Short Name	Rank (Benefit)	Rank (Risk)
State Agency Stewardship	Host meetings between state directors, DU regional director, and NAWMP/NAWCA program contacts to create awareness of the Fall Flights program opportunities and benefits and rebuild the "State Champion" network of state agency game and non-game staff.	Meetings of State Directors & Program Contacts - Identify and Engage State Champions	1	1
	Encourage state agencies to take a more active role in organizing Canadian visits by encouraging commissioners, directors, and staff to participate and to work with Canadian partners to plan visits.	States Actively Engage in Organizing Canadian Site Visits	4	5
Outreach and Communication	Prepare and distribute a new summary report and/or other information products (magazine articles, website materials, annual report for AFWA, etc.) for State Agencies, commissioners, governors, hunter groups, and birders, on Canadian accomplishments and state contributions to Canadian NAWCA projects (different than Habitat Matters). Also, develop a partnership "key message document" that clarifies the importance of all partners and identifies the common value and benefits to participation. Content could Include a pie-chart of the "unfunded opportunity." And provide program level annual report to all state directors at AFWA annual meetings to provide both accountability and encouragement to increase contributions [Include info such as: state contributions relative to their goals, leveraging ratio, habitat conserved, number of states with multi-year plans, etc.].	Create/Distribute Program Information, Annual Report, and "Key Messages Document"	6	6
	Publicize the conservation value of state investments in Canadian habitat and importance of breeding habitat in Canada to the overall life cycle needs of species using graphics, infographics, and other types of communication tools suitable for inclusion in state reports, and feature articles, reports, presentations, etc. (Preparation of band return maps for each state to illustrate connections with breeding grounds, migration habitats, and wintering areas for game and non-game species is included in this task and will involve engagement of Joint Ventures and state species specialists.)	Publicize Conservation Value Information of Leveraging Funds Through Preparation of Graphics and Other Materials	2	2
Increasing Funding	Develop administrative and/or process types of resource materials for State agencies, such as: a) descriptions of the various funding models (i.e. state duck stamp, hunting license, non-game funds, and general revenue); b) guidance document(s) on use of PR funds for Canadian projects as additive funds to existing investments in Canada; c) list(s) of conservation agencies in the U.S. to partner with on projects in Canada to conserve non-game species; and d) draft letters to help state agencies request judges to direct payments to a dedicated fund for contributions to Canadian projects.	Develop Resource Materials (e.g. sources of funds, PR guidance, list of potential partners, proforma letters)	3	3
Biological Connectivity	Document the connection and potential benefits for each state between wetland habitat in Canada and non-game migratory birds identified in State Wildlife Action Plans (SWAP); NABCI goals; MBTA laws; and NAWCA goals and convey the urgent need for investment in breeding grounds and wintering areas due to the rapid loss of habitat and the need to protect the remaining habitat and restore lost habitats.	Document Benefits of Canadian Habitat for Non-Game Migratory Bird Species and Urgent Need for Investments to Protect Habitat	5	4

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Table 6: Cluster Analysis Variable Descriptions

Cluster Analysis Variable	Description
Investment Stage	An ordinal measure of the length of time a state has been investing in the Fall Flights program. An initial score was assigned based on the year the state began contributions and adjusted for the number of years missed.
Waterfowl Lifecycle	An ordinal measure based on the importance of the state's available habitat in the lifecycle of waterfowl. The score was assigned based on the availability of breeding, migration, and wintering habitat.
Director Tenure	An ordinal measure of the length of time the agency director has been appointed — higher score denoted longer tenure.
Values Orientation	An ordinal measure of each state's wildlife value orientation with higher scores for traditionalist orientations (Manfredo et.al., 2018).
Waterfowl Hunters	A ratio measure of the number of waterfowl hunters in a state relative to the total number of waterfowl hunting license holders.
Resident Bird Watchers	A ratio measure of the number of bird watchers in a state relative to the total state population.
Lifestyles Ratio	A measure of expenditures on conventional outdoor recreation activities relative to total expenditures on outdoor recreation activities and acts as a proxy for the importance of hunting and fishing to a state's economy.
Government Expenditure	A ratio measure of government expenditures on outdoor recreation relative to total state government expenditures.
Contributions to the AFWA Goal	A ratio measure of each state's five-year (2015-2020) average Fall Flights investment relative to their 2011 AFWA goal.
Migratory Bird Focus	A binomial measure of whether a state has indicated interest in investing in habitat outside of its borders to benefit migratory bird species.
Duck/Habitat Stamp Program	A binomial measure of whether a state has dedicated funds through license or stamp sales for investment in waterfowl habitat.
AFWA Goal	A ratio measure of the Fall Flights state goal (1985-2018 median) relative to the total AFWA goal.

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Table 7: Group Identities from Cluster Analysis of State and Agency Characteristics

Group / States	Group Description
Group 1 District of Columbia, Hawaii, Nevada, and New York	Group with the lowest mean z-score across the standardized variables where the group scored low in investment stage, waterfowl lifecycle, values orientation, waterfowl hunters, resident bird watchers, lifestyles ratio, contributions to the AFWA goal, duck/habitat stamp (none of the states have a dedicated stamp), and AFWA goal.
Group 2 Arizona, Colorado, Florida, Georgia, New Jersey, New Mexico, North Carolina, Rhode Island, and Virginia	Group with the next lowest mean z-score across the standardized variables where the group scored high on waterfowl lifecycle and duck/habitat stamp (all the states have a dedicated stamp). However, they scored low on director tenure, values orientation, resident bird watchers, lifestyles ratio, contributions to the AFWA goal, and AFWA goal ratio.
Group 3 Alaska, Idaho, Montana, South Dakota, Utah, and Wyoming	Group is considered average and had mean z-score close to zero. This group scored high on values orientation, resident bird watchers, and government expenditures. The group scored low on waterfowl lifecycle, director tenure, and contributions to the AFWA goal.
Group 4 Connecticut, Indiana, Iowa, Kansas, Maine, Michigan, Minnesota, New Hampshire, Oregon, Pennsylvania, Vermont, Washington, and Wisconsin	Group is also considered as average and the group scored high on resident bird watchers, lifestyles ratio, and duck/habitat stamp (all the states have a dedicated stamp). It scored low on government expenditures and contributions to the AFWA goal.
Group 5 Alabama, Delaware, Illinois, Kentucky, Massachusetts, Mississippi, Missouri, Nebraska, Ohio, Oklahoma, South Carolina, Tennessee, and West Virginia.	Group has an above average mean z-score across the standardized variables. This group scored high on resident bird watchers and contributions to the AFWA goal. It scored low on government expenditures.
Group 6 Arkansas, California, Louisiana, Maryland, North Dakota, and Texas	Group had the highest mean z-score across the standardized variables. This group scored high in investment stage, director tenure, waterfowl hunters, duck/habitat stamp (all the states have a dedicated stamp), and AFWA goal ratio. It scored low in resident bird watchers.

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Table 8: Decadal Means of Active US Hunter and US Waterfowl Harvest Data

	Decadal Mean of Active Waterfowl Hunters					Decadal Mean of US Duck Harvest				
	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019
Alabama	12,200	9,500	10,260	13,890	13,500	94,116	85,154	106,373	173,665	151,520
Alaska	10,800	11,750	8,880	6,100	5,370	87,827	85,688	70,052	67,547	57,690
Arizona	9,600	6,500	4,520	4,150	2,980	72,835	48,179	31,741	42,122	31,560
Arkansas	46,550	32,950	41,190	63,700	57,010	653,732	465,668	908,988	1,170,228	1,145,180
California	129,650	76,700	61,880	53,590	51,630	1,882,429	1,052,850	1,060,390	1,277,863	1,259,400
Colorado	36,550	35,300	32,350	22,350	18,480	177,134	131,170	132,551	117,472	95,720
Connecticut	11,400	10,400	6,500	3,790	2,470	42,764	31,553	23,073	24,112	14,780
Delaware	10,100	7,650	5,360	5,390	4,630	47,455	40,590	47,481	52,997	36,690
Florida	28,250	15,400	14,030	12,820	14,660	254,964	194,062	172,095	160,451	190,470
Georgia	11,800	11,600	14,670	15,760	18,610	72,445	79,462	90,130	109,585	153,180
Idaho	26,250	20,900	18,760	20,790	20,220	294,838	213,763	190,898	226,977	231,290
Illinois	64,500	47,150	46,760	42,960	32,350	369,879	282,224	285,132	426,950	347,220
Indiana	18,750	11,600	15,540	17,580	12,020	86,660	63,385	81,057	121,368	94,120
Iowa	50,650	28,950	25,260	23,610	17,140	316,742	231,908	188,540	219,245	170,760
Kansas	44,050	20,250	16,550	19,110	18,820	338,400	138,617	132,278	214,847	196,070
Kentucky	11,000	11,400	12,490	14,530	9,400	58,739	49,989	91,409	167,081	117,200
Louisiana	106,650	81,350	73,840	68,620	67,960	1,612,078	1,385,922	1,589,868	1,506,341	1,643,510
Maine	14,550	10,750	8,320	7,260	5,450	91,376	66,394	65,337	58,968	30,500
Maryland	31,600	30,550	22,180	29,320	30,210	121,450	129,451	157,871	169,952	123,770
Massachusetts	20,900	15,350	10,520	4,730	4,540	89,343	67,434	52,527	32,175	24,610
Michigan	82,850	46,450	56,750	51,290	40,820	357,449	248,156	297,269	334,759	298,450
Minnesota	149,500	113,150	116,370	95,780	70,880	869,995	693,175	639,881	634,349	572,530
Mississippi	22,600	17,050	15,550	17,330	14,070	246,610	201,429	252,926	330,079	264,270
Missouri	47,500	32,350	27,120	33,620	34,030	255,943	198,819	234,521	417,631	431,790
Montana	22,750	15,900	13,660	17,340	17,330	173,080	108,966	104,990	120,981	135,670
Nebraska	37,800	26,700	27,240	19,440	16,900	265,638	172,261	146,498	201,230	159,350
Nevada	10,300	7,200	6,190	4,490	3,520	95,959	68,577	62,105	42,246	40,990
New Hampshire	8,350	6,800	4,560	3,450	2,690	29,051	24,235	19,419	16,965	13,710
New Jersey	26,650	17,700	10,700	7,880	7,630	138,342	100,957	65,868	68,286	57,780
New Mexico	5,950	4,750	4,030	3,870	4,330	43,618	32,654	29,800	41,757	34,890
New York	75,300	46,450	31,200	26,220	23,220	307,998	231,374	196,937	206,844	173,130
North Carolina	24,500	21,300	21,640	24,400	32,190	162,587	177,556	184,333	226,000	344,190
North Dakota	47,200	34,750	26,710	35,080	36,080	360,128	201,610	247,072	486,269	450,470
Ohio	34,550	26,200	25,950	25,950	19,900	123,053	96,978	105,270	138,079	117,910
Oklahoma	23,700	12,450	12,940	16,440	17,730	208,471	131,554	163,504	293,728	278,880
Oregon	47,350	31,900	24,110	23,640	21,550	401,487	283,759	285,780	414,917	371,660
Pennsylvania	63,400	44,350	37,960	45,300	33,030	147,418	109,679	101,065	150,837	78,110
Rhode Island	2,600	1,900	1,560	1,130	1,000	17,780	13,744	8,997	9,570	6,640
South Carolina	19,250	16,900	17,790	19,680	19,460	146,890	138,094	154,191	199,681	182,570
South Dakota	35,200	26,800	26,670	24,400	18,790	259,505	148,156	169,318	220,943	178,590
Tennessee	24,500	19,750	22,710	22,300	13,870	154,607	122,064	233,250	316,900	218,100
Texas	115,650	87,150	78,710	104,480	81,500	1,027,008	754,276	807,043	1,062,563	1,098,050
Utah	31,350	21,350	18,660	18,930	17,030	309,404	197,545	203,257	227,030	219,820
Vermont	6,200	5,600	4,110	2,940	3,300	36,281	28,294	27,492	24,086	20,300
Virginia	17,550	15,500	16,020	20,870	20,620	113,852	103,277	106,396	141,414	139,990
Washington	62,450	42,950	29,970	25,980	24,720	534,364	373,394	341,005	396,244	424,480
West Virginia	1,750	1,450	1,310	1,260	1,070	6,871	6,237	5,809	6,019	5,570
Wisconsin	110,050	82,900	75,570	80,230	62,440	595,257	379,147	307,256	404,950	406,630
Wyoming	8,150	8,150	8,490	9,360	5,860	52,484	44,548	36,337	42,774	36,180

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Table 9: New State Goals for the Fall Flights Program and Percentage Change from 2011 Goals

	2011 Targets	Proposed 2021 Targets	% Change
Alabama	$ 92,640	$ 120,989	31%
Alaska		$ 48,594	
Arizona	$ 43,602	$ 29,417	-33%
Arkansas	$ 579,789	$ 700,355	21%
California	$ 785,994	$ 708,799	-10%
Colorado	$ 168,394	$ 128,913	-23%
Connecticut	$ 36,572	$ 20,940	-43%
Delaware	$ 44,991	$ 38,715	-14%
Florida	$ 141,958	$ 126,060	-11%
Georgia	$ 89,235	$ 124,298	39%
Idaho	$ 172,314	$ 175,731	2%
Illinois	$ 315,280	$ 309,943	-2%
Indiana	$ 94,044	$ 104,999	12%
Iowa	$ 200,208	$ 162,235	-19%
Kansas	$ 164,365	$ 160,083	-3%
Kentucky	$ 85,805	$ 105,739	23%
Louisiana	$ 961,483	$ 892,843	-7%
Maine	$ 63,062	$ 44,506	-29%
Maryland	$ 165,062	$ 184,712	12%
Massachusetts	$ 62,396	$ 30,856	-51%
Michigan	$ 319,949	$ 319,664	0%
Minnesota	$ 683,502	$ 589,976	-14%
Mississippi	$ 172,341	$ 180,675	5%
Missouri	$ 237,076	$ 307,591	30%
Montana	$ 116,390	$ 123,790	6%

	2011 Targets	Proposed 2021 Targets	% Change
Nebraska	$ 170,940	$ 147,099	-14%
Nevada	$ 53,458	$ 33,135	-38%
New Hampshire	$ 28,441	$ 19,124	-33%
New Jersey	$ 90,053	$ 57,510	-36%
New Mexico	$ 33,409	$ 32,299	-3%
New York	$ 233,957	$ 179,176	-23%
North Carolina	$ 166,008	$ 230,713	39%
North Dakota	$ 261,653	$ 331,743	27%
Ohio	$ 151,699	$ 147,904	-3%
Oklahoma	$ 143,328	$ 182,562	27%
Oregon	$ 241,333	$ 246,990	2%
Pennsylvania	$ 219,869	$ 213,202	-3%
Rhode Island	$ 11,156	$ 7,689	-31%
South Carolina	$ 133,665	$ 157,276	18%
South Dakota	$ 183,791	$ 169,330	-8%
Tennessee	$ 166,411	$ 179,774	8%
Texas	$ 723,920	$ 812,543	12%
Utah	$ 178,184	$ 162,619	-9%
Vermont	$ 27,958	$ 21,938	-22%
Virginia	$ 115,983	$ 143,266	24%
Washington	$ 304,978	$ 265,405	-13%
West Virginia	$ 7,209	$ 7,247	1%
Wisconsin	$ 482,151	$ 463,075	-4%
Wyoming	$ 49,319	$ 47,956	-3%

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Table 10: Current Investment and New Canadian Federal and Provincial Government NAWCA Match Goals

	Current % Split	Current Investments	Desired NAWCC % Split	Desired Current Investments	Cdn Goals ($US 5M AFWA Goal)	Cdn Goals ($US 10M AFWA Goal)
	Current Provincial		Provincial Goals			
BC	7.1%	$ 574,260	10.0%	$ 813,469	$ 1,111,296	$ 2,222,592
AB	30.7%	$ 2,497,958	20.0%	$ 1,626,938	$ 2,222,592	$ 4,445,184
SK	7.1%	$ 575,848	35.0%	$ 2,847,141	$ 3,889,536	$ 7,779,073
MB	12.6%	$ 1,028,599	15.0%	$ 1,220,203	$ 1,666,944	$ 3,333,888
ON	13.6%	$ 1,102,777	10.4%	$ 846,008	$ 1,155,748	$ 2,311,496
QC	19.5%	$ 1,584,648	6.0%	$ 488,081	$ 666,778	$ 1,333,555
NB	1.1%	$ 90,459	1.5%	$ 117,140	$ 160,027	$ 320,053
NS	7.9%	$ 640,117	1.1%	$ 96,640	$ 132,022	$ 264,044
PE	0.2%	$ 19,481	0.7%	$ 52,713	$ 72,012	$ 144,024
NL	0.3%	$ 20,543	0.3%	$ 26,356	$ 36,006	$ 72,012
	Current Federal		Federal Goals by JV Split			
BCJVs	12.6%	$ 1,640,324	10.0%	$ 1,305,309	$ 1,783,209	$ 3,566,418
PHJV	40.4%	$ 5,278,327	70.0%	$ 9,137,163	$ 12,482,463	$ 24,964,927
EHJV	47.0%	$ 6,134,440	17.0%	$ 2,219,025	$ 3,031,455	$ 6,062,911
WBF	0.0%	$ -	3.0%	$ 391,593	$ 534,963	$ 1,069,925
Prov Total		$ 8,134,688		$ 8,134,688	$ 11,112,961	$ 22,225,922
Fed Total		$ 13,053,090		$ 13,053,090	$ 17,832,091	$ 35,664,181

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APPENDICES

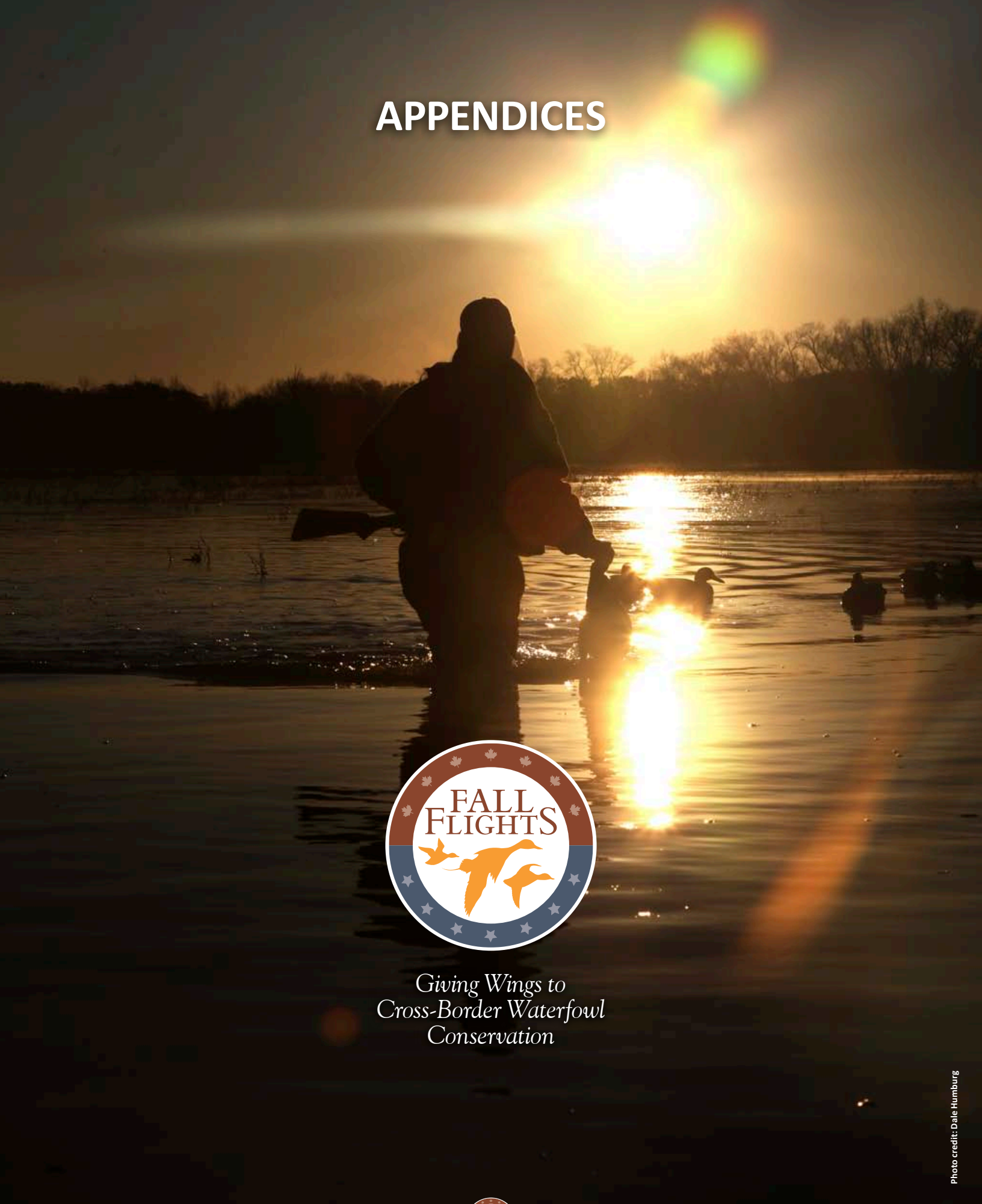


Photo credit: Dale Humburg

Appendix A – 1991 IAFWA Resolution

IAFWA Resolution No. 2, September 11, 1991

STATE FUNDING FOR THE NORTH AMERICAN WATERFOWL MANAGEMENT PLAN

WHEREAS, the states have expressed a commitment to the goals and objectives of the North American Waterfowl Management Plan since its inception; and

WHEREAS, the states have continued to provide financial support for Canadian North American Waterfowl Management Plan projects; and

WHEREAS, it is essential to demonstrate continued strong state financial support for full implementation Of the North American Waterfowl Management Plan in Canada and to provide support for reauthorization of the North American Wetlands Conservation Act;

NOW, THEREFORE, BE IT RESOLVED that the International Association of Fish and Wildlife Agencies and the states shall strive to maximize state support in the range of $10 million per year from the states as U.S. matching funds for North American Waterfowl Management Plan projects in Canada and that the North American Waterfowl Management Plan Implementation Committee of the International Association of Fish and Wildlife Agencies continue to explore, through the Flyway Councils and other appropriate avenues, ways and means of achieving this goal.

Photo credit: Dale Humburg

Appendix B – Draft 2021 Resolution

DRAFT RESOLUTION #2021-X

ENHANCING THE FALL FLIGHTS PROGRAM AND INCREASING STATE AGENCY INVESTMENTS IN CANADIAN WATERFOWL BREEDING GROUNDS

WHEREAS, 2021 marks the 35th anniversary of the signing of the North American Waterfowl Management Plan (NAWMP) which has contributed to the protection, restoration and enhancement of wetlands and associated habitats in Canada, the United States and Mexico; and

WHEREAS, the NAWMP has been the most successful continental wildlife conservation effort in history, providing recreational, environmental, and economic benefits by conserving habitat for important waterfowl and other wetland-related species throughout North America; and

WHEREAS, the 2018 update of the NAWMP acknowledged these habitat accomplishments while also pointing to the increasing threats to critical waterfowl habitat across North America and the need to increase our conservation efforts, grow the number of hunters, and engage other members of society who could contribute to and benefit from wetland and waterfowl conservation; and

WHEREAS, hunters and anglers in the United States historically spend $76 billion per year, and hunting and fishing activities support more than 1.33 million jobs and generate more than $25 billion a year in federal, state, and local taxes, and

WHEREAS, Canadian breeding grounds provide over 70% of North American waterfowl production (ducks, geese, and swans), without which there would not be a fall flight that results in US waterfowl hunters generating an economic output of over $3 billion per year, including state tax revenues of more than $202 million, and generating approximately $40 million per year for wetland conservation on National Wildlife Refuges through the sale of the Migratory Bird Hunting and Conservation Stamp, and

WHEREAS, the North American Wetland Conservation Act (NAWCA) was signed into law in December 1989, reauthorized at $60 million in 2020, and provides a significant source of funding for wetland and waterfowl projects in Canada, the United States, and Mexico; and

WHEREAS, the NAWCA has provided $1.83 billion in federal grants and facilitated the conservation of over 30 million acres of wetlands and associated habitats in all 50 states, Canada, Mexico, Puerto Rico and the U.S. Virgin Islands by more than 6,350 partners that have invested over $3.75 billion in matching funds, and

WHEREAS, NAWCA requires that a minimum of 30 percent of appropriated funds be used outside the U.S., and further requires that U.S. federal funds sent to Canada through NAWCA be matched at least 1:1 by non-federal funds, of which at least 50 percent of the matching funds must originate from within the United States; and

WHEREAS, in 1991, 2005 and again in 2011 the Association of Fish and Wildlife Agencies passed resolutions that affirmed a goal for the State Fish and Wildlife Agencies to contribute up to $10 million annually through the Fall Flights program for waterfowl habitat projects in Canada, and

WHEREAS, the Association's $10 million annual goal for the Fall Flights program has not yet been attained, there is a shared interest in working to improve the effectiveness of the program and to increase the collective investments of states and make progress toward the Fall Flights goal, recognizing that states differ in their capacity to attain individual goals.

NOW, THEREFORE, BE IT

RESOLVED, that the Association of Fish and Wildlife Agencies reaffirm the original $10 million annual goal for the Fall Flights program and for states to strive to maximize their investments to at least achieve an interim $5 million annual goal by 2026 as U.S. matching funds for NAWCA projects in Canada; and

BE IT FURTHER RESOLVED, that the Association of Fish and Wildlife Agencies commit to making progress toward achieving the interim $5 million goal and the long-term $10 million goal by encouraging each state to make an annual investment, based on the state's proportion of waterfowl hunters and duck harvests averaged over the period from 2000 through 2019; and

BE IT FURTHER RESOLVED, that the Association of Fish and Wildlife Agencies work with Canadian government agencies to establish goals for increased investments in wetland conservation and NAWCA match for state monies provided through the Fall Flights program; and

BE IT FURTHER RESOLVED, that the Association of Fish and Wildlife Agencies create a standing "Fall Flights Advisory Committee" to oversee the implementation of the Fall Flights program, to report annually to the Association's membership, and to provide recommendations to the Association's President and Executive Director.

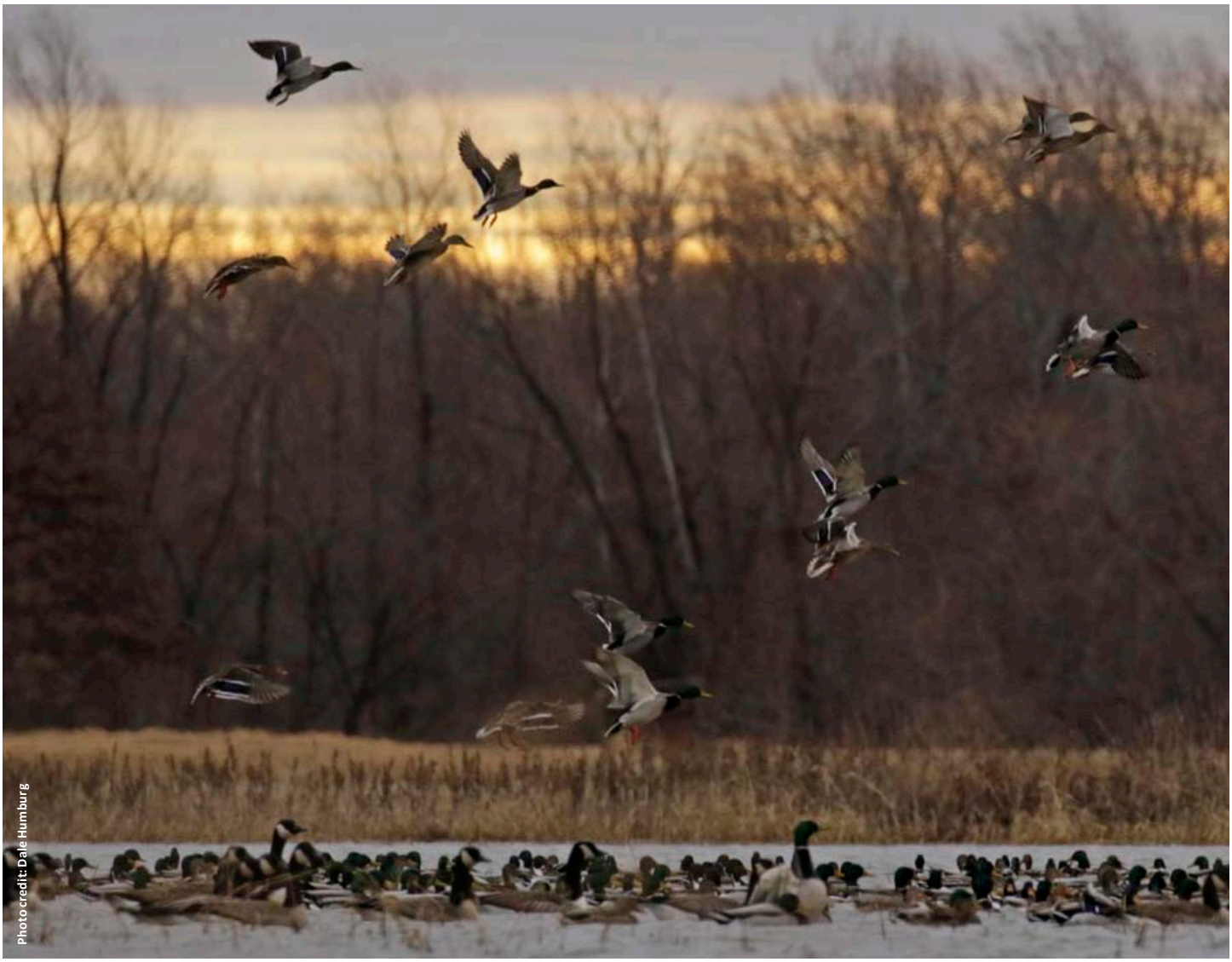


Photo credit: Dale Humburg

Appendix C – Terms of Reference for Fall Flights Advisory Committee

Fall Flights Advisory Committee — Terms of Reference

Under its new strategic plan, the Association of Fish and Wildlife Agencies (AFWA) has committed to facilitate partnerships among member fish and wildlife agencies to leverage existing resources and to maximize the impacts of existing conservation dollars. In keeping with this objective, the Fall Flights Task Force was re-established in 2020 to review progress towards implementing the program's 2016 Action Plan and develop recommendations for how the Association could work with its members to achieve the goal of investing $10M annually in Canadian NAWMP/NAWCA projects. One recommendation was to create an ongoing Fall Flights Advisory Committee to continue the development, and oversee and promote the Fall Flights program, with the goal of achieving an annual investment by state fish and wildlife agencies of $10 million towards waterfowl habitat projects in Canada.

Purpose

The primary purpose of the Fall Flights Advisory Committee is to oversee the implementation of the Fall Flights Program.

Specific outcomes are to:

- Oversee Fall Flights initiative
- Establish a program brand
- Reach Fall Flights mid- and long-term funding objectives
- Promote the program
- Highlight program outcomes/ benefits

Report program progress to the AFWA President

Governance Approach

The committee will operate under a consultative governance structure, whose role is to understand issues and needed changes, provide advice and assessment of potential impact, and make needed adjustments within their own responsibility area (i.e., state and/ or regional association).

The Fall Flights Advisory Committee will consist of three core elements,
1) Program Champions,
2) Program Stakeholders and
3) Association staff (see diagram).

Budget

The annual budget will be determined by the Committee, with approval from the AFWA President. It will be the responsibility of the Committee and its members to source its financial needs, which could include receiving funds from NGO partners, states, grants, AFWA, or other opportunities.

Membership and Structure

Terms

Members will serve 2-year terms, for a maximum of three consecutive appointments, and given the significant international importance and strategic needs of the Fall Flights program, it is desirable that state fish and wildlife agency directors and senior leadership staff of non-government agencies be appointed as members.

Elections/Appointments

Committee Chair:

The Chair will be at the state director-level position, appointed by the AFWA President, from one of the regional associations. A rotation of Chairs from all the regional associations is desired, with each Chair serving a single 2-year term.

Past Chair:

Upon expiry of the appointed Chair's term, they will automatically serve a 2-year term as Past Chair. If the Past Chair cannot fulfill their 2-year term, the AFWA President will select a candidate from the Advisory Committee.

Waterfowl Working Group Chair:

The Chair of AFWA's Waterfowl Working Group will be a member of the Fall Flights Advisory Committee.

Committee Members:

Each AFWA regional association (i.e. WAFWA, MAFWA, SEAFWA, NEAFWA), the National Flyway Council, and the Canadian Wildlife Directors Committee (CWDC) shall identify one representative to sit on the Fall Flights Advisory Committee. Individuals shall be identified and their names shall be submitted to the AFWA President and Executive Director prior to the AFWA Annual Meeting.

NGO Partners:

All recipients of state funding for Canadian-based waterfowl programming will be offered an opportunity to serve as a Program Champion, including, but not limited to, Ducks Unlimited Canada, Ducks Unlimited Inc. and the partnership of Delta Waterfowl/Manitoba Habitat Heritage Corporation.

Authority

Serving at the call of the AFWA President, the Fall Flights Advisory Committee will be a standing committee to oversee the implementation and report annually on the Fall Flights program (including implementation of the 2020 Task Force recommendations), as well as provide guidance and advice to the Association's President and Executive Director as requested.

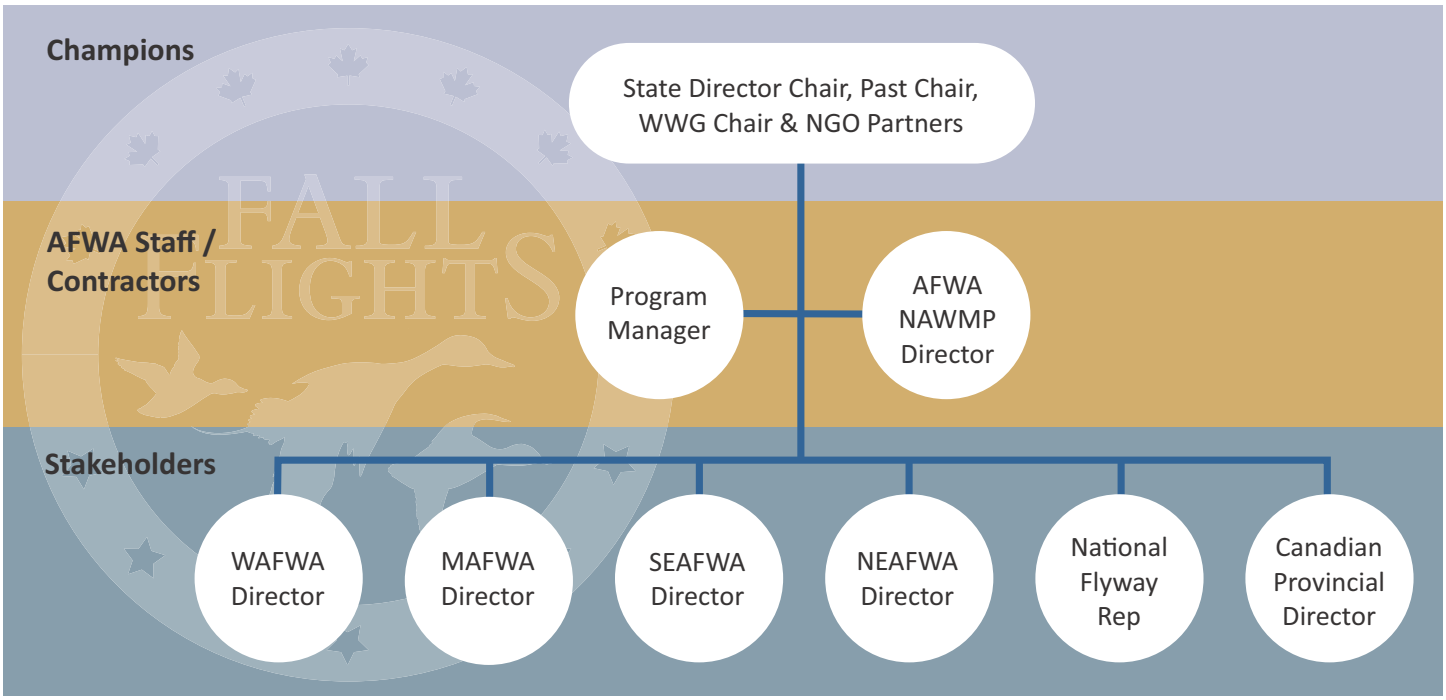
Meeting Frequency

At the call of the Chair, with the recommendation that the Advisory Committee meet at least twice per year.

Quorum

A simple majority will comprise a quorum.

Fall Flights Advisory Committee Governance Structure



Appendix D – Historical State Goals for Investments in Canadian Waterfowl Breeding Grounds (Rounded to Nearest Thousand)

State	1991 Goals based on 1980s hunter/ harvest data	2005 Goals based on 1970-1989 hunter/ harvest data	2011 Goals based on 1970-2009 hunter/ harvest data	2021 Goals based on 2000-2019 hunter/ harvest data
Alabama	$ 76,000	$ 84,000	$ 93,000	$ 121,000
Alaska				$ 49,000
Arizona	$ 52,000	$ 44,000	$ 44,000	$ 29,000
Arkansas	$ 353,000	$ 494,000	$ 580,000	$ 700,000
California	$ 816,000	$ 962,000	$ 786,000	$ 709,000
Colorado	$ 202,000	$ 180,000	$ 168,000	$ 129,000
Connecticut	$ 52,000	$ 41,000	$ 36,000	$ 21,000
Delaware	$ 51,000	$ 46,000	$ 45,000	$ 39,000
Florida	$ 151,000	$ 152,000	$ 142,000	$ 126,000
Georgia	$ 90,000	$ 85,000	$ 89,000	$ 124,000
Idaho	$ 192,000	$ 174,000	$ 172,000	$ 176,000
Illinois	$ 306,000	$ 310,000	$ 315,000	$ 310,000
Indiana	$ 74,000	$ 87,000	$ 94,000	$ 105,000
Iowa	$ 226,000	$ 208,000	$ 200,000	$ 162,000
Kansas	$ 147,000	$ 167,000	$ 164,000	$ 160,000
Kentucky	$ 58,000	$ 74,000	$ 86,000	$ 106,000
Louisiana	$ 959,000	$ 1,004,000	$ 961,000	$ 893,000
Maine	$ 74,000	$ 67,000	$ 63,000	$ 45,000
Maryland	$ 192,000	$ 160,000	$ 165,000	$ 185,000
Massachusetts	$ 90,000	$ 73,000	$ 62,000	$ 31,000
Michigan	$ 288,000	$ 316,000	$ 320,000	$ 320,000
Minnesota	$ 772,000	$ 704,000	$ 684,000	$ 590,000
Mississippi	$ 164,000	$ 166,000	$ 172,000	$ 181,000
Missouri	$ 220,000	$ 219,000	$ 237,000	$ 308,000
Montana	$ 113,000	$ 117,000	$ 116,000	$ 124,000
Nebraska	$ 188,000	$ 177,000	$ 171,000	$ 147,000
Nevada	$ 66,000	$ 60,000	$ 53,000	$ 33,000
New Hampshire	$ 38,000	$ 31,000	$ 28,000	$ 19,000
New Jersey	$ 51,000	$ 101,000	$ 90,000	$ 58,000
New Mexico	$ 36,000	$ 34,000	$ 33,000	$ 32,000
New York	$ 280,000	$ 251,000	$ 234,000	$ 179,000
North Carolina	$ 177,000	$ 161,000	$ 166,000	$ 231,000
North Dakota	$ 230,000	$ 241,000	$ 262,000	$ 332,000
Ohio	$ 138,000	$ 150,000	$ 152,000	$ 148,000
Oklahoma	$ 114,000	$ 133,000	$ 143,000	$ 183,000

State	1991 Goals based on 1980s hunter/ harvest data	2005 Goals based on 1970-1989 hunter/ harvest data	2011 Goals based on 1970-2009 hunter/ harvest data	2021 Goals based on 2000-2019 hunter/ harvest data
Oregon	$ 260,000	$ 239,000	$ 241,000	$ 247,000
Pennsylvania	$ 230,000	$ 213,000	$ 220,000	$ 213,000
Rhode Island	$ 14,000	$ 12,000	$ 11,000	$ 8,000
South Carolina	$ 131,000	$ 127,000	$ 134,000	$ 157,000
South Dakota	$ 177,000	$ 185,000	$ 184,000	$ 169,000
Tennessee	$ 123,000	$ 153,000	$ 166,000	$ 180,000
Texas	$ 660,000	$ 693,000	$ 724,000	$ 813,000
Utah	$ 186,000	$ 184,000	$ 178,000	$ 163,000
Vermont	$ 36,000	$ 30,000	$ 28,000	$ 22,000
Virginia	$ 114,000	$ 109,000	$ 116,000	$ 143,000
Washington	$ 344,000	$ 323,000	$ 305,000	$ 265,000
West Virginia	$ 9,000	$ 7,000	$ 7,000	$ 7,000
Wisconsin	$ 478,000	$ 484,000	$ 482,000	$ 463,000
Wyoming	$ 55,000	$ 48,000	$ 49,000	$ 48,000

Appendix E – Results of March 2021 Survey of Directors and Wildlife Chiefs

Question	Responses	Percent
What position do you hold within the agency?		
Director	14	34%
Wildlife Chief	17	41%
Flyway Technical Section Chair	3	7%
Other	7	17%
How familiar are you with the Fall Flights program and its goal to invest up to $10M per year in waterfowl breeding habitat in Canada?		
Not at all familiar	0	0%
Slightly Familiar	3	7%
Basic familiarity	9	22%
Familiar	12	29%
Extremely familiar	17	41%
Are you aware the Fall Flights program has an annual monetary target for each State Fish and Wildlife Agency that reflects a percentage of the $10M goal?		
Yes	34	83%
No	7	17%
Does your state agency have a "champion" that advocates strongly for the Association's Fall Flights program?		
Yes	28	68%
No	13	32%
If your agency has a "champion" for Fall Flights, please identify the level or position title for this person.		
Not applicable	11	27%
Director/Assistant Director	9	22%
Wildlife Chief	8	20%
Waterfowl Program Chief/Manager	11	27%
Bird or Non-game Chief/Manager	0	0%
Other	2	5%
Identify the THREE drivers that motivate your agency the most to participate in the Fall Flights program and invest in waterfowl breeding habitat in Canada.		
State relies on Canadian breeding habitat for waterfowl production	29	26%
Agency Director supports Fall Flights program goals	14	12%
Waterfowl/Wildlife Chief recommends investment in Canadian habitat	23	20%
State commitment to Flyway / Migratory bird initiatives	33	29%
Commission members strongly support investment in Canadian habitat	7	6%
Legislated mandate to invest in waterfowl breeding habitat	4	4%
Other	3	3%
To what degree do your constituents (e.g. waterfowl hunters, birdwatchers, others) impact your Agency's decisions to spend funds on Fall Flights and the breeding grounds in Canada?		
Not at all	9	22%
Low impact	13	32%
Moderately low impact	10	24%
Moderately high impact	8	20%
High impact	1	2%

Question	Responses	Percent
Your agency's participation (NOT the dollar amount) in the Fall Flights program is directly linked to, or influenced by the goals of your agency's …		
Waterfowl program	17	41%
Duck stamp program	6	15%
Wildlife program (in general)	10	24%
Another program	1	2%
Not linked directly to any program	7	17%
The dollar amount of your agency's investment in the Fall Flights program and Canadian waterfowl habitat is directly linked to your agency's …		
Waterfowl program budget	3	7%
Duck stamp program budget	18	39%
Wildlife program budget	11	24%
License sales	5	11%
Overall agency budget	5	11%
Another program budget	0	0%
Not linked directly or related to any agency budget(s)	4	9%
If your Agency is NOT investing in Canadian waterfowl breeding habitat at the FULL level of the AFWA Fall Flights goal for your state, what are the main reasons why? (Select up to three.)		
Competing budget priorities	19	48%
Insufficient biological information on waterfowl nexus between your state and Canada	3	8%
Insufficient biological information on other migratory bird species nexus between your state and Canada	1	3%
Insufficient information to determine the return on investment of State funds	2	5%
Lack support from Commission/Board or State government	2	5%
Other	13	33%
What are the top barriers that may be limiting your agency from increasing its investment in the Fall Flights program? (Select up to three.)		
Lack of Commission/Board support for the program	3	6%
Legislation/policy preventing expenditures outside of state	4	7%
Don't understand the program	0	0%
Program or agency budget limitation(s)	31	57%
Lack of agency support for the program	3	6%
Don't see value for the agency to increase participation in the program	6	11%
Other	7	13%
What THREE items would help your agency the most to overcome the critical barrier(s) to increasing your investment in the Fall Flights program?		
Information about waterfowl habitat and waterfowl production in Canada	9	13%
Information about the Fall Flights program and how it works	4	6%
Information about the biological (or other) benefits of your investment	18	26%
How your agency's investment is leveraged 4 or 5 times, with other private and public sources	10	14%
Visiting the breeding grounds in Canada to observe accomplishments and interact with delivery staff	8	12%
Assistance with policy or legislative change(s)	5	7%
Other	15	22%

Appendix F – Clustering Analysis Methodology

Clustering Analysis

The clustering analysis was conducted using k-means where the user defines the number of groups and starting from random group assignments an algorithm iteratively reassigns data points to clusters until the in-cluster sums of squares is minimized. Prior to clustering, the variables were converted to z-scores to ensure equal weight within the analysis. The k-means algorithm was run varying the number of groups from 2 to 15 and used the elbow method to determine the optimal number of groups and once an optimal group size was determined, each state was assigned to a group.

To determine how much each independent variable contributed to the clustering, an ANOVA test was used to determine how strongly the variable means differed between the clusters (higher F statistics indicate larger group differences). If the ANOVA was significant ($\alpha = 0.05$), a sample t-test was used for each group and variable combination to determine how groups scored in the significant variables relative to the mean. For a given test, if the mean z-score was < 0 and the t-test was significant ($\alpha = 0.05$) the group was classified as low in that variable. If the mean z-score was > 0 and the t-test was significant ($\alpha = 0.05$) the group was classified as high in that variable. If the t-test was not significant the group was classified as medium. Finally, the sum of squares was calculated for each state using the standardized variables and the group centroids to determine how well each state fit into their assigned cluster (higher values indicate more error and a worse fit).

Based on the elbow method, the optimal group size was determined to be six. Clustering the data into six groups explained approximately 45% of the variation in the independent variables. The groups had significantly different means for all independent variables except for migratory bird focus. The significant independent variable with the largest F statistic was contribution to the AFWA goal and the significant independent variable with the smallest F statistic was director tenure. A larger F Statistic indicates a greater difference in group means and a stronger influence on the clustering results.

ANOVA results indicating the F Statistic for each independent variable included in the cluster analysis

Independent Variable	F Statistic
Contributions to the AFWA goal	19.39
Resident bird watchers	12.77
AFWA goal	10.63
Values orientation	8.97
Lifestyles ratio	7.90
Investment stage	7.83
Waterfowl hunters	7.80
Duck/Habitat stamp	7.19
Waterfowl lifecycle	6.46
Government expenditure	6.42
Director tenure	4.58

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FALL FLIGHTS

Giving Wings to Cross-Border Waterfowl Conservation

ASSOCIATION *of* FISH & WILDLIFE AGENCIES

The voice of fish and wildlife agencies

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