

2026 AFWA Climate Adaptation Survey Report

A Review of Activities at State, Provincial, and Territorial Fish and Wildlife Agencies

A report for the Association of Fish and Wildlife Agencies and the Climate Adaptation Committee.

Executive Summary

The Association of Fish and Wildlife Agencies (AFWA) conducted their sixth biennial survey of U.S. state and territorial and Canadian provincial and territorial fish and wildlife agencies to assess their actions, needs, challenges, and opportunities for climate adaptation. The survey is designed to gather information that is useful and actionable in helping AFWA members advance adaptation.

Responses were received from 48 U.S. states and territories and 2 Canadian provinces. Results are summarized binationally (including all responses) and on a regional scale based on the regional associations of fish and wildlife agencies.

Results are reported on five aspects of climate adaptation work:

1. Observed climate changes and impacts
2. Efforts and activities to advance adaptation
3. Barriers to implementing adaptation efforts
4. Agency capacity to advance adaptation
5. Adaptation resources, products, and sources of information

Fish and wildlife agencies are making meaningful progress on adaptation, particularly through incorporating climate change into decision making and planning. The majority of agencies are conducting various climate and vulnerability assessments. Some agencies making climate-informed policy changes targeting fishing, hunting, and nongame regulations. While agencies are taking action to address climate change, planning outpaces implementation of on-the-ground activities. Species-specific efforts, such as conservation introductions, are gaining momentum. Progress is also being made to increase tracking and monitoring of adaptation efforts.

Key barriers to advancing adaptation include a lack of capacity and funding, lower prioritization, critical information gaps, and a lack of political will. In particular, critical information needs reflect the gap between planning and implementation. The most needed resources include best management practices under climate change, case studies of adaptation, and training about on-the-ground implementation.

While these barriers and resources needs persist, agencies are increasing support for and prioritization of adaptation, often in response to observed damage from extreme events. Respondents report an increase in leadership support for adaptation and an increase in capacity, resources, and time for addressing climate change.



State fish and wildlife agencies demonstrate strong momentum in adaptation planning, while limited capacity, competing priorities, and critical information gaps constrain broad implementation. Leveraging partnerships to meet information needs, and increasing intra-agency climate communication are key to advancing adaptation and promoting resilience in fish and wildlife management.

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Introduction

The Association of Fish and Wildlife Agencies (AFWA) has surveyed U.S. state and territorial and Canadian provincial and territorial fish and wildlife agencies (hereafter state fish and wildlife agencies) about their climate adaptation efforts biennially since 2012. The purposes of this climate adaptation survey are to: (1) identify top climate concerns for state fish and wildlife agencies, (2) track changes in how agencies approach adaptation, and (3) assess agency capacity and barriers to implementation. Ultimately, the goal of this survey is to pinpoint critical needs and identify opportunities to assist states in their efforts to advance climate adaptation.

The survey also guides the efforts of the Climate Adaptation Committee and AFWA's Climate Adaptation Program. The 2020 survey, for example, identified an interest in climate adaptation guidance for State Wildlife Action Plans, which resulted in the development of the 2nd editions of the *Voluntary Guidance for States to Incorporate Climate Adaptation into State Wildlife Action Plans*. The survey results are also shared widely with partners, with the aim of facilitating the development and provision of additional needed resources. The U.S. Geological Survey's Climate Adaptation Science Center in particular have cited past survey reports as support for their work.

This report summarizes the results of the 2026 survey and includes needs and desires reported by agency staff in the survey. It does not, however, include recommendations for next steps or how state agencies and their partners might use these data to advance adaptation.

Methods

The 2026 AFWA Climate Adaptation Survey was distributed to all U.S. states and territories and Canadian provinces and territories. The survey contained questions within five categories: (1) climate change impacts and concerns, (2) adaptation planning, (3) adaptation actions, (4) resources, and (5) agency capacity. This survey retained a majority of questions from the 2022 survey with questions designed to obtain more nuanced responses that would be more actionable.

The survey contained 35 questions including short open-ended response and multiple choice. It was distributed online via Survey Monkey, April through June 2026. Multiple responses from a single agency were welcomed and respondents were guaranteed confidentiality.

Survey results were analyzed binationally including all responses, as well as regionally. Regional analysis was based on the boundaries of the regional associations of fish and wildlife agencies – Northeast Association of Fish and Wildlife Agencies (NEAFWA), Southeastern Association of Fish and Wildlife Agencies (SEAFWA), Midwest Association of Fish and Wildlife Agencies (MAFWA), and Western Association of Fish and Wildlife Agencies (WAFWA).

Results

Respondent demographics

Seventy (70) responses were submitted representing 48 U.S. States and Territories (46 and 2 respectively) and 2 Canadian Provinces. Responses provided broad geographic coverage, though

less in Canada (Table 1). A complete list of agencies within each region is included in Appendix 1. Throughout this report, results are reported binationally and by AFWA regions where there were notable differences; there were not enough responses from Canadian responses to meaningfully report differences between the US and Canada.

Table 1. Response rate by region

	Total number of States, Territories, and Provinces ¹	Number of individual responses	Number of agencies responding	Agency response rate
USA	57	68	49	86%
Canada	13	2	2	15%
Northeast ²	21	18	15	71%
Southeast ²	17	21	16	94%
Midwest ²	16	18	12	75%
West ²	23	22	15	65%

¹ Regions based on AFWA regional associations

² Some agencies are members of multiple regional associations, and are therefore counted twice in this table

Respondents represented a broad assortment of positions within their agencies (Figure 1). Most respondents serve as program managers (44%), executive leadership (20%), and in other roles (14%) with more specific titles including State Wildlife Action Plan Coordinator, Permit Coordinator, or Policy Coordinator. At least 3 responses were completed by several individuals reporting collectively on their agency's adaptation efforts.

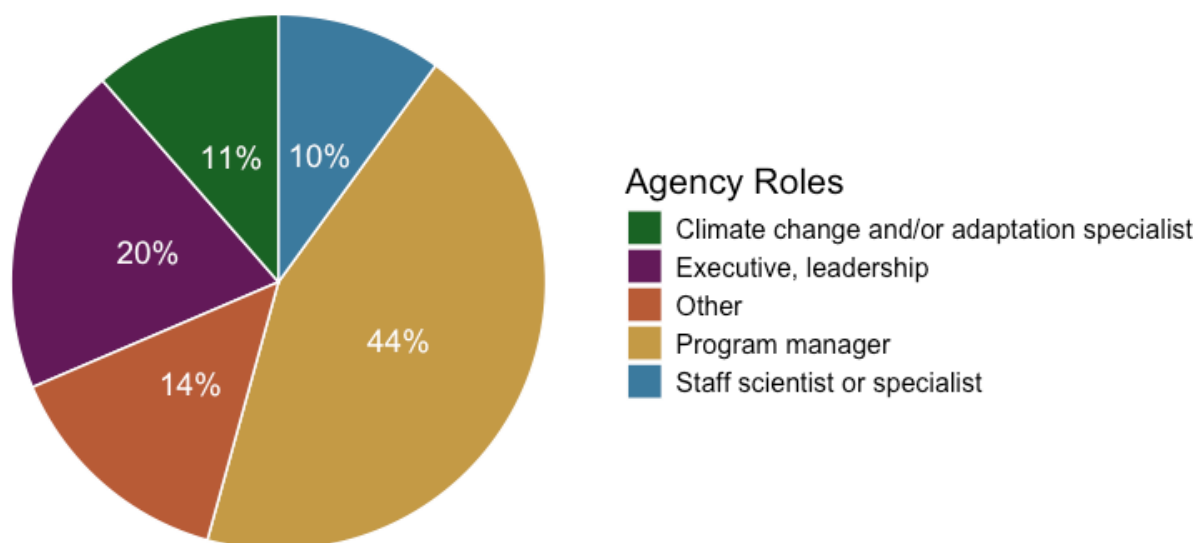


Figure 1. Agency role of survey respondents

All ecosystems and taxa were represented in responses asking respondents about their primary focus. The most common focal ecosystems selected were forests (46%), wetlands (43%), and



inland waters (36%), with 54% of respondents selecting more than one focal ecosystem (Figure 2). The most common focal taxa selected were birds (41%), mammals (36%), and fish (34%), with 49% of respondents selecting more than one taxon (Figure 3).

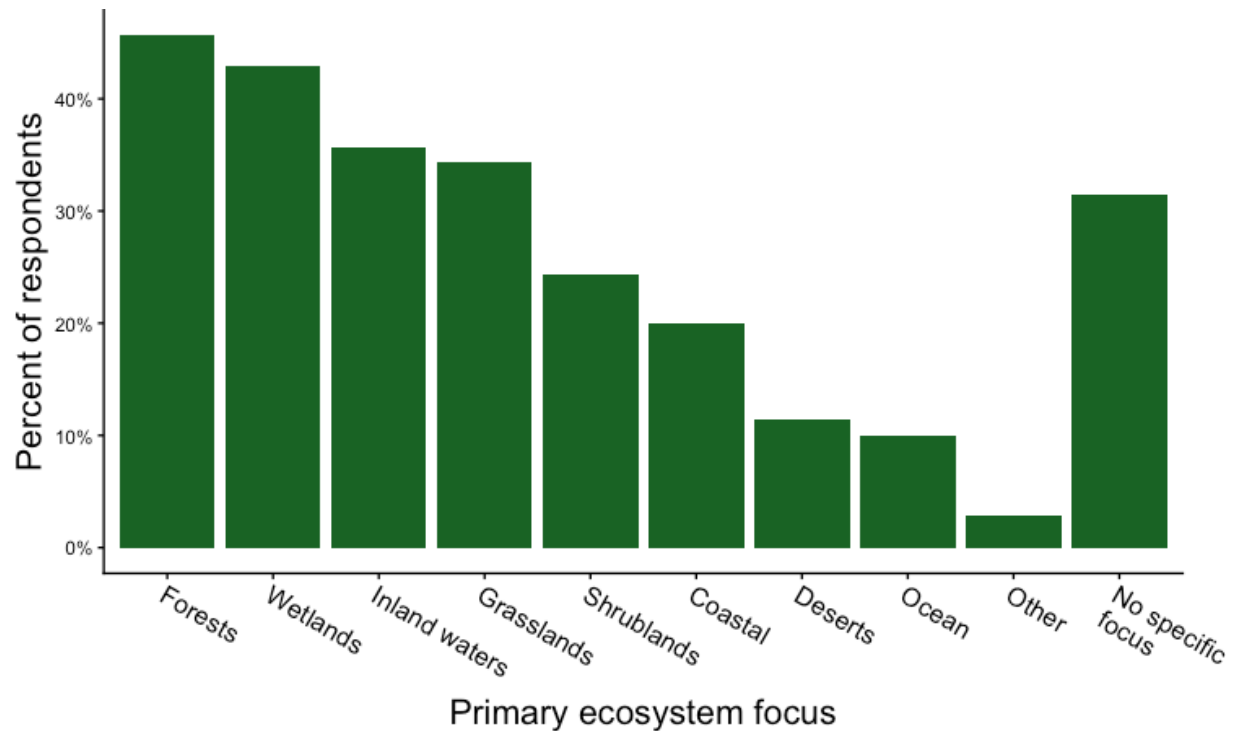


Figure 2. Self-reported focal ecosystems of survey respondents

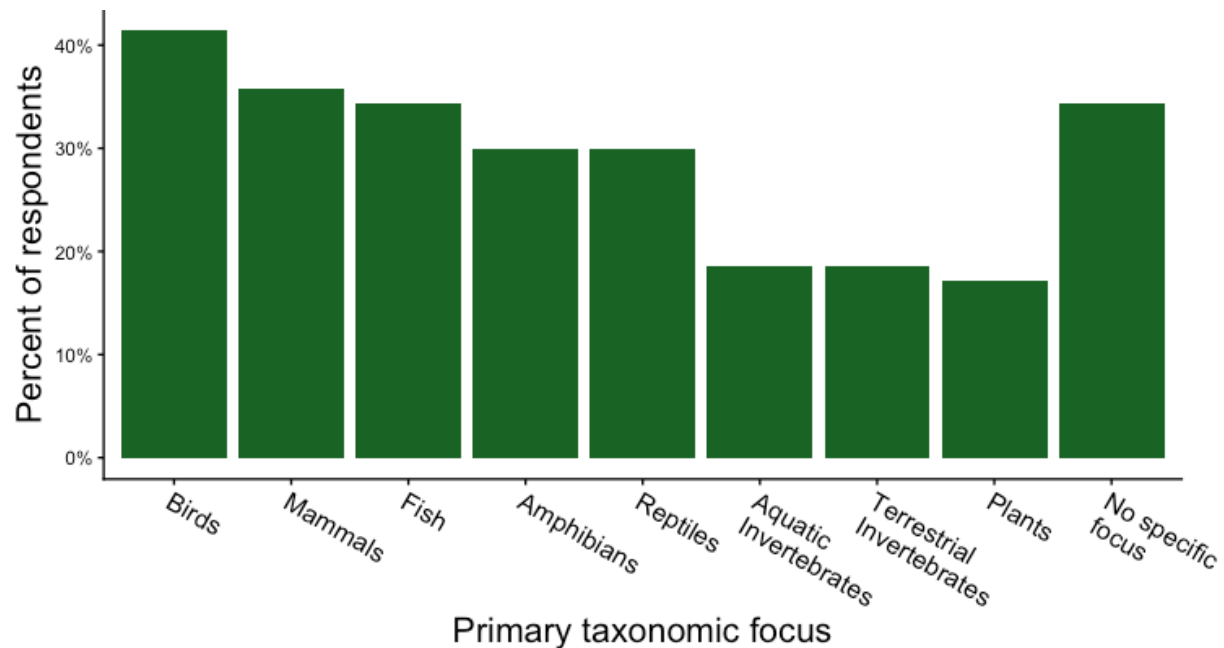


Figure 3. Self-reported focal taxa of survey respondents

Climate change concerns

Survey respondents identified many climate-related changes that are top concerns for state agencies. Binationally the top four climate change concerns are

1. drought (50%),
2. changing in the amount and time of precipitation (46%),
3. increasing variability of weather (41%), and
4. increasing temperature (33%).

There is some regionally variation, though, with other climate changes emerging as top concerns (Figure 4). Changing precipitation patterns and increasing climate variability are the top two concerns for the Northeast, Midwest, and Southeast, and the third and fourth most common concern for the West. Flooding and extreme weather are top concerns for the Midwest. States in the Northeast and Southeast also report flooding and extreme weather as concerns, though sea level rise is reported as a top concern by more states in those regions. The West demonstrates the greatest differences. Drought is by far the top climate concern reported by western state agencies, with wildfire as the second most common concern.

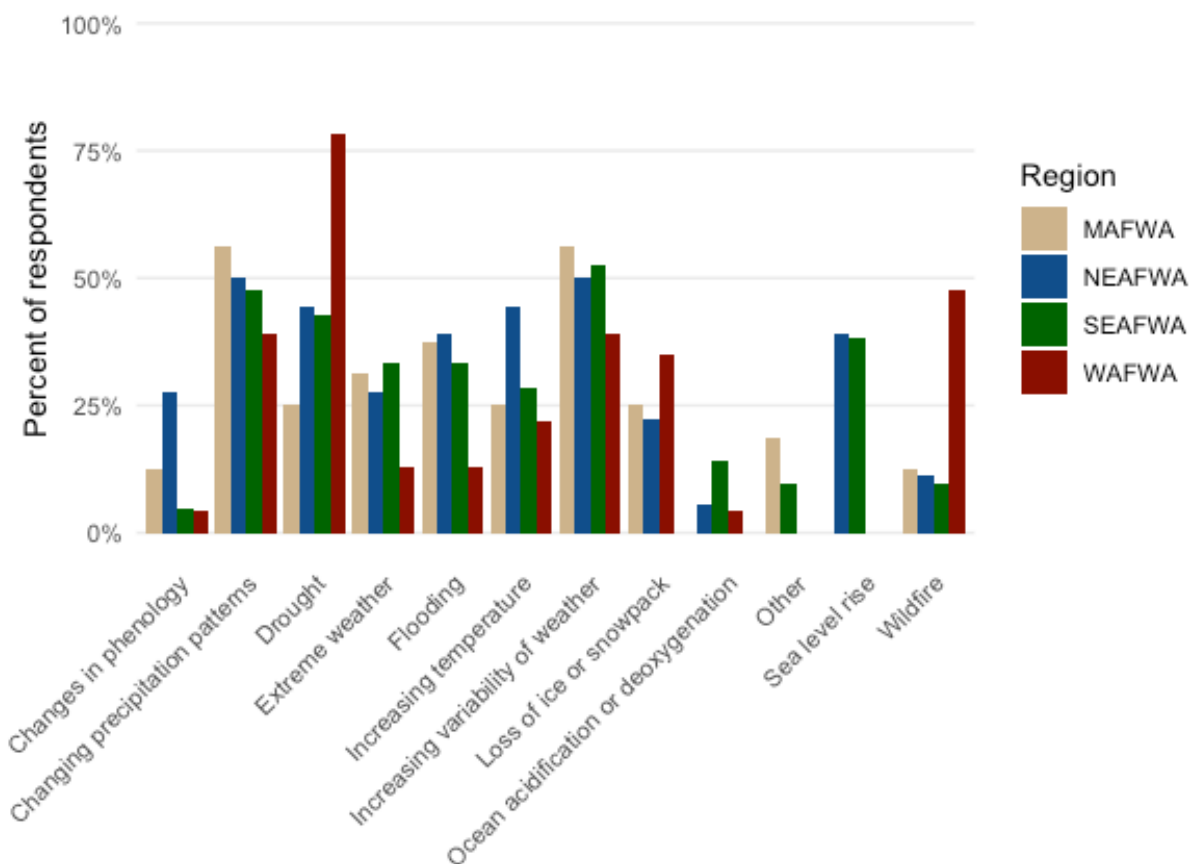


Figure 4. Climate-related changes reported by respondents as a one of their agencies top three concerns. Percentages are calculated within each region.

State agencies also report observing many ecological impacts as a result of those changes in climate. Binationally, the most common *observed* impacts (Figure 5) include changing species distributions (73%), invasive species (73%), changing phenology (61%), and changing population sizes (57%) (Figure 5).

The impacts reported as top agency *concerns* somewhat reflect these commonly observed changes, with invasive species (50%), changing species distributions (37%), and changing population sizes (36%) all selected as top concerns. However, two impacts – changing biodiversity (40%) and changing recreational and commercial hunting and/or fishing opportunities (36%) – are reported as top concerns even though they are not reported as the most commonly observed impacts. Additionally, changing phenology, while observed by 61% of respondents, was only reported as a concern by 17% of respondents. There is also considerable regional variation in the climate change impacts reported as top agency concerns (Figure 6). Invasive species and changing biodiversity are the top concerns within the Northeast (72% and 67% respectively) and Southeast (62% and 33% respectively). The top climate change impact concerns in the Midwest are changing species distribution (63%) and changing hunting and/or fishing opportunities (50%). In the West, changing population sizes (52%) and changing hunting and/or fishing opportunities (43%) are the most commonly reported concerns.

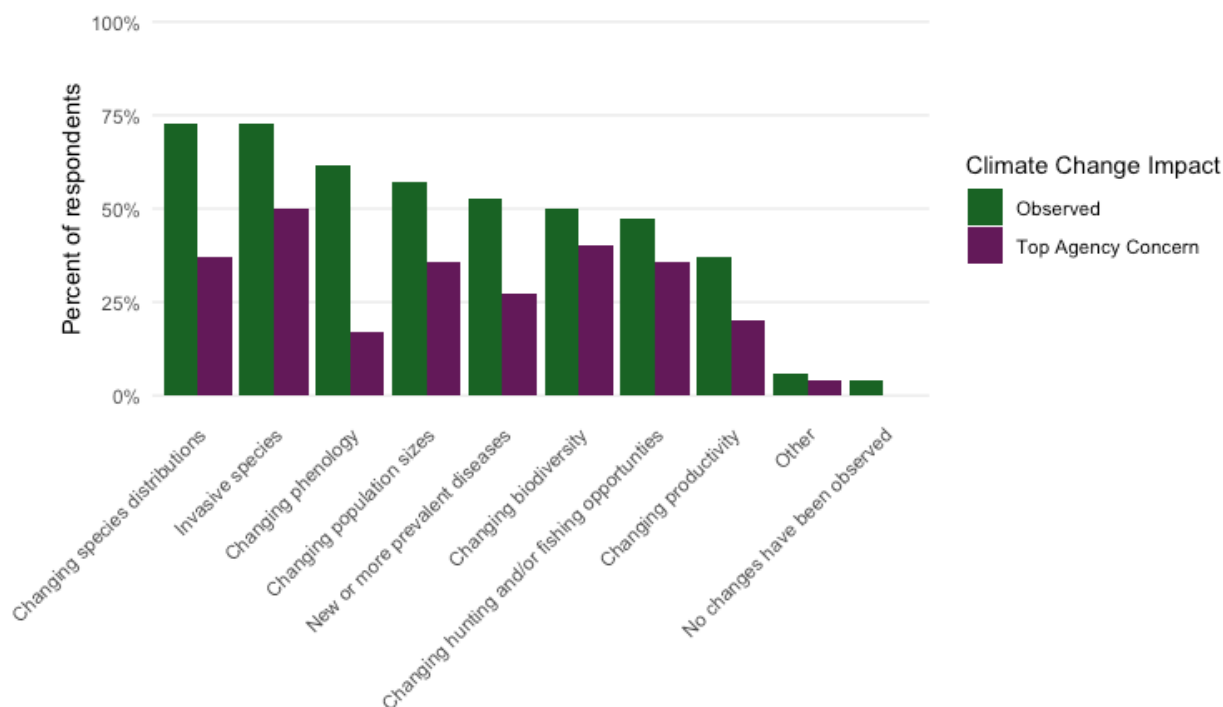


Figure 5. Climate change impacts observed by and reported as top agency concerns by respondents.

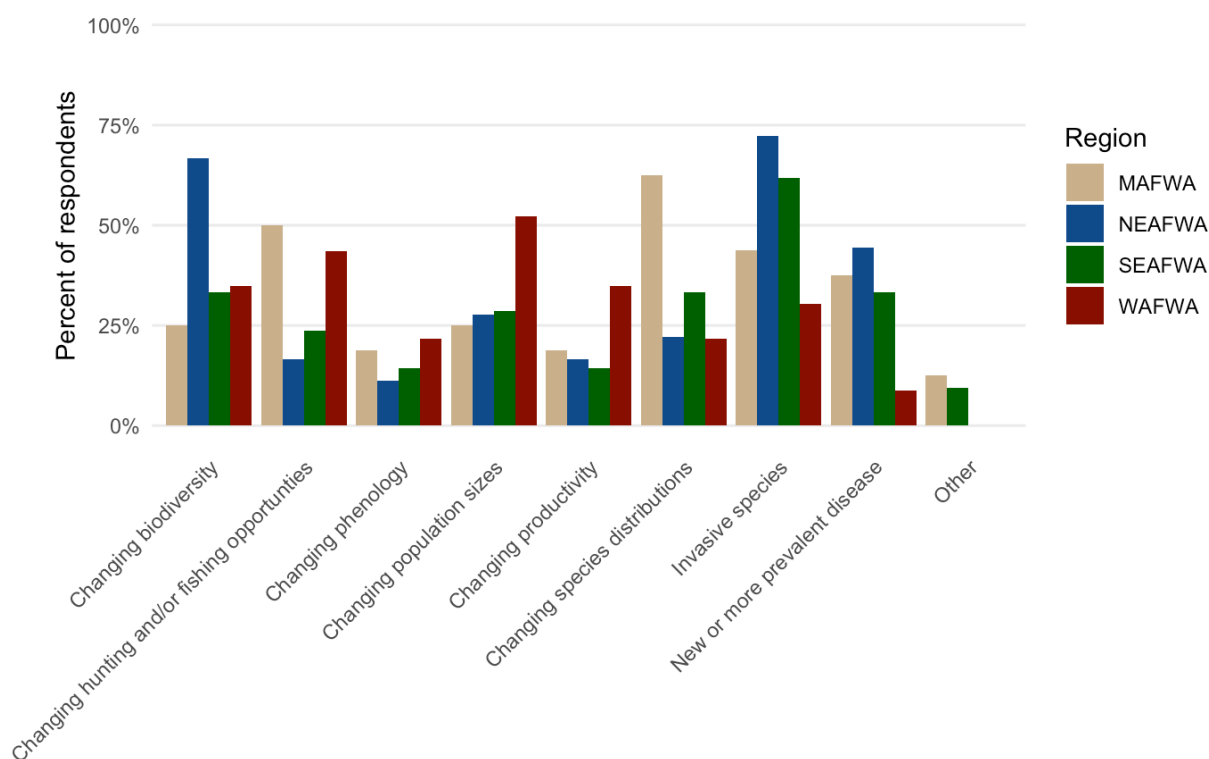


Figure 6. Impacts of climate change reported by respondents as a one of their agencies top three concerns. Percentages are calculated within each region.

Climate Adaptation Activities

Planning and Decision Making

The vast majority of states are addressing climate change and adaptation in decision-making and planning. Eighty-two (82%) percent of states¹ who responded to the survey report incorporating climate change and adaptation into at least some decision making. For 22% of those states, it is codified into policy that climate change should be incorporated into decision making. Climate models and projections are used to inform decision making by 66% of responding states.

Eighty (80%) percent of responding states are incorporating adaptation to some extent into management plans. The slight discrepancy between states that incorporate climate change into plans compared to decision making may represent the fact that it is possible to consider climate change in the context of decisions without explicitly making those connections in written planning. Twenty (20%) percent of agencies report having an agency-wide climate change or adaptation plan, with an additional 12% reporting plans in development. Within the latest State Wildlife Action Plan revisions, climate adaptation is incorporated to varying degrees, discussed in several places (32%),

¹ Survey responses about planning and decision making were aggregated at the agency level for analysis because the survey questions asked about the agency's planning process.

incorporated throughout the plan (30%), and has a dedicated section (12%). Most states focus on a 10-year planning horizon, consistent with State Wildlife Action Plans. However, 42% consider outcomes beyond that. Most of those states mention planning for 2050 and/or 2075/2080, and 5 states report planning for the end of the century (2100). A few respondents also describe using multiple planning horizons depending on the landscape or specific changes regardless of timeline (e.g., 2ft of sea level rise). Additionally, 50% of responding states have general climate plans beyond agency specific plans that cover climate topics across sectors (e.g., drought planning, mitigation, etc.), with an additional 6% in development.

Implementing Adaptation Activities

State fish and wildlife agencies are implementing numerous climate adaptation activities. These activities can be generally categorized as those related to planning and those related to implementation. Responses² demonstrate that planning and assessment activities are outpacing implementation of on-the-ground activities (Figure 7). From most to least commonly conducted, planning activities include

1. plan development (61%),
2. species vulnerability assessments (34%),
3. regional coordination (33%),
4. habitat vulnerability assessments (30%),
5. connectivity assessments (29%),
6. use of climate projections (24%),
7. infrastructure vulnerability assessments (21%), and
8. scenario planning (16%).

Implementation activities include

1. on-the-ground habitat adaptation (34%),
2. protecting climate refugia (23%),
3. adaptive management of on-the-ground adaptation activities (21%),
4. climate-informed policy changes (20%), and
5. on-the-ground species-specific adaptation (14%).

More respondents are considering conducting these implementation activities (Figure 7) indicating that agencies are making progress moving from planning to implementation.

² Results focused on adaptation activities are reported at the individual respondent level to account for different respondents implementing and/or considering different activities.

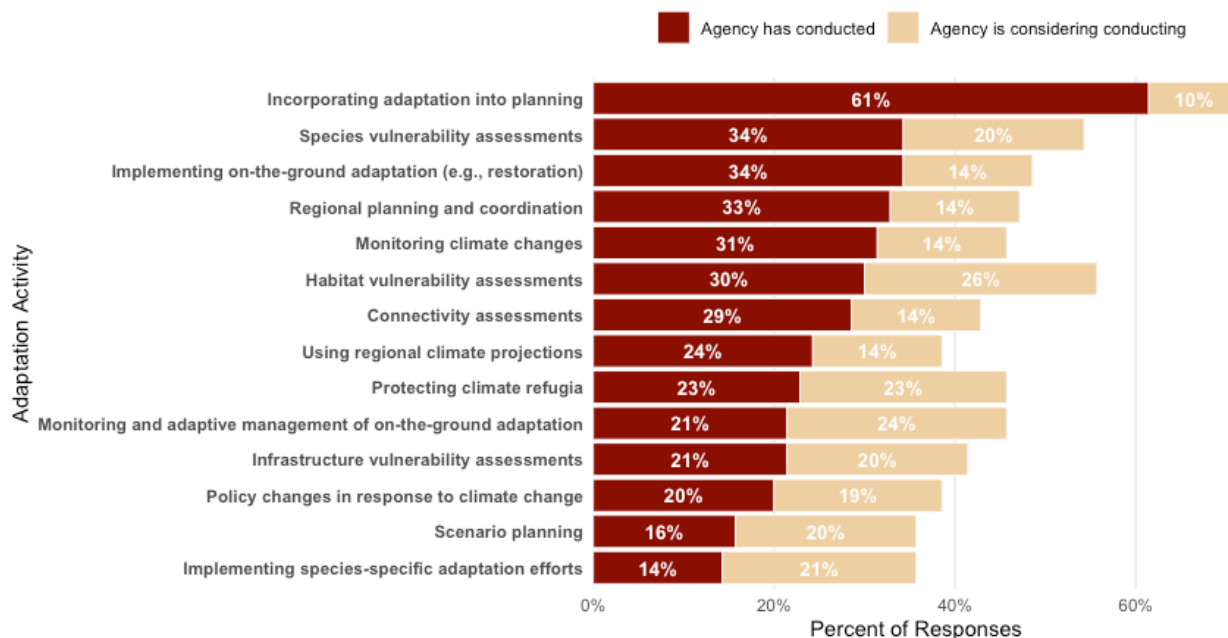


Figure 7. Climate adaptation activities conducted and considered by state fish and wildlife agencies. Activities are ordered top to bottom by most to least conducted by respondents. Activities were selected from a drop-down menu.

A conservation introduction (or managed relocation) is one species-specific adaptation activity that some agencies are beginning to include in adaptation discussions. It is a relatively novel activity for agencies, with only 3% implementing, 4% planning, and 13% considering a conservation introduction.

While not specifically an on-the-ground adaptation activity, policy changes in response to climate change can also be considered an implementation activity. Twenty percent of respondents report that their agency has made these climate-informed policy changes, with an additional 19% considering them. Specifically, these changes include fishing regulations (16%), hunting regulations (11%), and nongame regulations (3%), with some agencies implementing multiple changes. Some respondents also report that policy changes have been made that were not explicitly linked to climate change, though climate change was likely an underlying or contributing factor.

Monitoring

Consistent with the pattern that planning for climate change is ahead of implementation, monitoring climate change is conducted more than monitoring adaptation activities, conducted by 31% and 21% of respondents respectively (Figure 7). Exploring tracking and monitoring more closely reveals a more nuanced picture. Twenty-one percent of respondents are monitoring conservation actions that are intentionally responding to climate; in other words, actions that are planned and executed to respond to specific climate stressors. This monitoring is happening through numerous methodologies including field surveys of wildlife populations, monitoring of habitat restoration projects, GIS, remote sensing, and individual research projects. More (29%) are

tracking these intentional actions with State Wildlife Action Plan project tracking tools, CLIMATE scorecards, reports to other agencies, and other online systems as available. Still more (53%) are tracking and monitoring actions that are not intentionally responding to climate change, but are known to have benefits for adaptation. Examples of this provided by respondents include application of prescribed fire, installation of beaver dam analogs or translocation of beavers, habitat restoration, monitoring indicator species, and invasive species removal.

Communication

Agencies are communicating about climate change and adaptation to some extent, with 47% of respondents reporting outreach to at least one constituency. State fish and wildlife agencies are conducting outreach to the general public (39%), anglers (21%), hunters (17%), wildlife viewers (17%), and boaters (9%). Interestingly, and perhaps coincidentally, the relative proportion of respondents who conduct climate communication to anglers, hunters, and wildlife viewers mirrors the relative proportion of climate-informed policy changes for fisheries, hunting, and nongame species. Some respondents also report communicating about climate change with a few other groups including elected officials, land owners, and, pointedly, other wildlife management professionals.

Many respondents report that an important change they would like to see is more climate communication. This includes more transparent and explicit communication about climate change with the general public. Respondents also expounded on the importance of more internal communication about climate change. Conversations and discussions about climate change between colleagues within state agencies can help drive action from the ground up. Further, shifting the conversation about climate adaptation to highlight the synergistic impacts of climate change can support more implementation. Adaptation is a part of holistic conservation and management actions and does not need to be addressed as a separate issue. Several (12%) respondents also describe a desire to see more communication with leadership about the importance of climate adaptation and in return see more top-down communication prioritizing climate action.

Barriers to Adaptation

While state fish and wildlife agencies are taking action in many ways, barriers to implementing climate adaptation still exist. From most to least reported by respondents, barriers include: lack of funding or capacity (54%), lower prioritization of climate change (40%), lack of staff expertise (40%), lack of information about appropriate adaptation actions (37%), political conditions that are not conducive to climate action (36%), lack of information about climate impacts to specific species and ecosystems (26%), lack of administrative support (20%), lack of public support (19%), lack of agreement within science (7%), and lack of information about impacts (7%).

Several other barriers of note were reported. There may be varying support and attention to climate impacts based on other factors (e.g., impact to infrastructure, impact to consumptive vs. non-consumptive species), and this variation may impede more comprehensive implementation of adaptation. Other lacking resources that respondents identified include economic impact

information about costs and returns on adaptation investment and effective communication products for the public and operations. A couple of respondents mentioned a fear of loss of external funding in light of already restricted agency budgets and, separately, a discomfort with uncertainty around climate impacts and adaptation outcomes. Finally, several respondents describe how the inclusion of climate considerations is often left to individual staff or how a lack of clear instruction from leadership about the inclusion of climate considerations can inhibit more widespread implementation of adaptation.

Many of these barriers are not new and have remained salient for state agencies (Figure 8). The top two barriers to implementation consistently identified through all iterations of the AFWA Climate Adaptation Survey have been a lack of funding and a lack of capacity or time (purple shades in Figure 8). This is expected given that limited funding and capacity are identified as challenges chronic to the conservation field. As one respondent noted: “We don’t even have staff capacity to handle the basic duties of the past 30 years, much less adding capacity for climate-related impacts.” Frequently, the third and fourth most pervasive barriers impede the notion that ideally management and conservation decisions should be made based on best available science (green and blue shades in Figure 8). However, the identified barriers note that the best available science – staff expertise in adaptation, information on climate impacts, and knowledge of appropriate actions to take – is limited within the field of climate adaptation. A third type of barrier that has emerged as a common barrier over the years relates to values and priorities (yellow and orange shades in Figure 8). Respondents have shared that when viewed as a discrete issue, climate adaptation action is seen as a lower priority within agencies, whether driven by politics, economics, and/or social values. All of these barriers have remained persistent over time. However, the ranking of these barriers does not reveal the magnitude and impact of these barriers, which were not assessed in this survey. Future survey efforts may benefit from exploring that further.

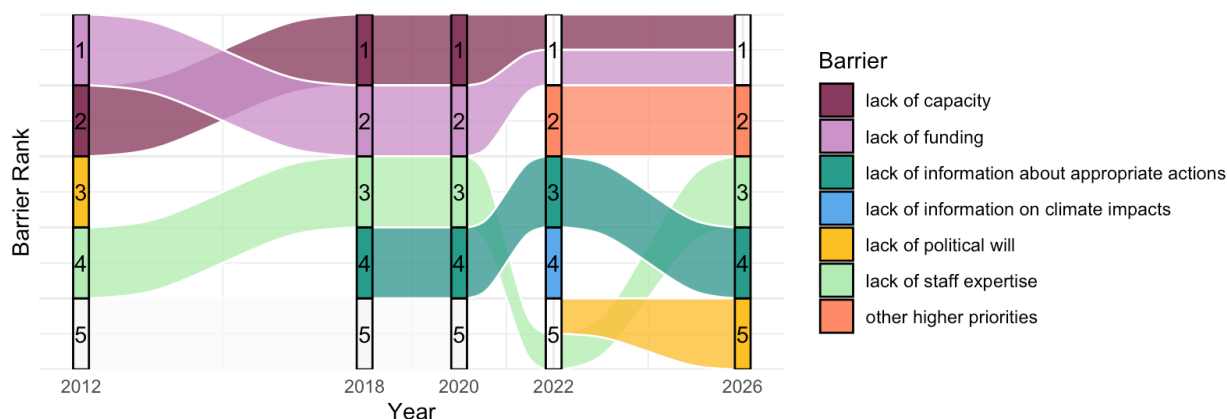


Figure 8. Most common barriers over the years to implementing climate adaptation within state fish and wildlife agencies.

Addressing Barriers to Adaptation

While barriers persist, state fish and wildlife agencies are taking steps to reduce those barriers. Agencies are increasing support for and prioritization of climate adaptation.

In order to address capacity barriers, agencies have added staff and time for working on climate issues. Thirteen percent of respondents report that their agencies have dedicated staff positions to focus on climate change, and additional 36% are expected to consider climate change. A large majority, 79%, provide time for their staff to incorporate climate change into actions. Respondents report this time being used for adaptation planning (43%), assessing climate impacts (34%), and learning or building capacity (34%), and conducting outreach (27%). Fewer respondents report time allocated for monitoring adaptation actions (20%) and on-the-ground implementation of adaptation actions (17%). To address expertise barriers, many staff (39%) are encouraged to take climate-related training, and 10% have internal climate trainings available.

Respondents were also asked about the degree to which their agency has experienced organizational changes due to climate-related impacts (Figure 9). A majority of agencies have reported organizational changes to some extent. Most agencies (85%) have seen an increase in resources to address climate change. Seventy-eight percent have seen an increase in leadership support for this topic. Seventy-four percent report added capacity in general. Notably, the greatest magnitude of change was reported as an increase in leadership support with 15% and 13% seeing significant and major increases respectively (Figure 9). A minority of respondents (10%) self-report that they have seen a decline in capacity and support, which the survey question formatting did not initially accommodate.

When asked to elaborate on reported changes, most respondents pointed to extreme events as key drivers for capacity changes. Specifically, 68% report increases in climate-driven damages to infrastructure and operation to some extent (16% minimal, 13% minor, 16% moderate, 7% significant, 16% major).

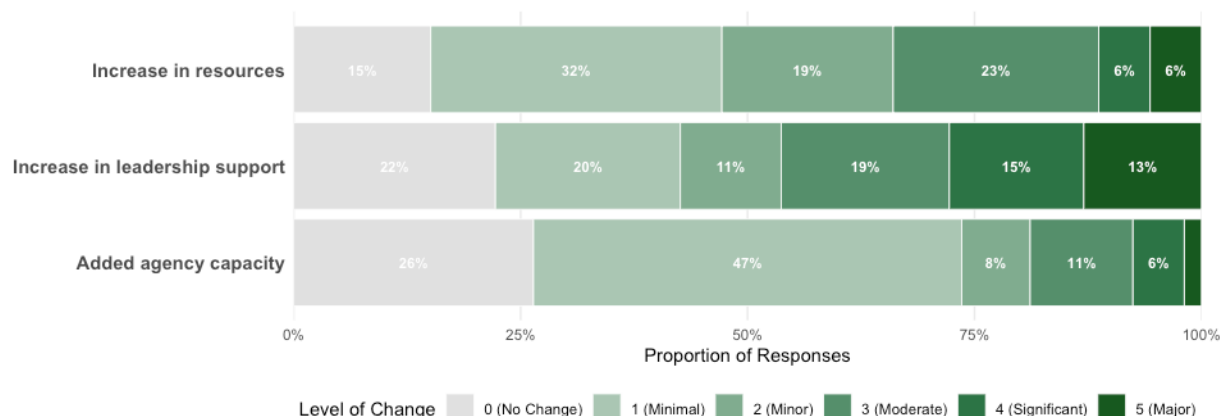


Figure 9. Organizational changes experienced by state fish and wildlife agencies in the past 5 years due to climate-related impacts.

State fish and wildlife agencies are also increasing capacity through partnership and leveraging and magnifying resources through cross-sector collaboration. Respondents report working with a variety of sectors. Fifty-one percent are working with water resources on stream flow, water rights, and water availability. Twenty nine percent are working with transportation and infrastructure, particularly on connectivity issues. Twenty three percent are working with agriculture, often on habitat management and with easements. Twenty one percent are collaborating with the energy sector, often on projects to understand the impacts of wind and solar efforts. Lastly, 9% are partnering with housing and urban development entities on land use planning. A few others mention commerce, human health, and academia as other partners.

Resources for Climate Adaptation

Resources Used

State fish and wildlife agencies are using many different products and a wealth of information to inform their climate adaptation work. The top five most commonly used resources include

1. regional and sub-regional climate projections (57%),
2. partnerships to leverage resources and knowledge (56%),
3. habitat connectivity information (54%),
4. life history information (51%), and
5. climate impacts on specific species or habitats (47%).

This list offers insight about general trends in information use. However, this cannot necessarily be interpreted as widespread use or adoption by an agency. A full list of resources used is included in Appendix 2.

Fish and wildlife agencies are getting their information from many sources including federal agencies (64%), academic institutions (63%), peer-reviewed journals (56%), national assessment reports (40%), state climatologists (39%), conservation non-profits (37%), within their own state agencies (34%), from other state agencies (21%), and Canadian Centres for Climate Services (3%; consistent with the response rate from Canadian provinces). State agencies are primarily obtaining information from external sources, particularly national sources. Further, within federal agencies, most are getting their information from USGS Regional Climate Adaptation Science Centers (CASC; 64%), National CASC (40%), U.S. Fish and Wildlife Service (30%), USDA Forest Service (29%), National Aeronautics and Space Administration (NASA; 20%), and USDA Climate Hubs (19%). Of note, all respondents who reported that they obtain information from federal agencies, rely on regional CASCs. There is some variation between AFWA regions; 56% of Midwest AFWA, 61% of Northeast AFWA, 67% of Southeast AFWA, and 65% of Western AFWA obtain resources from regional CASCs³.

³ Regional CASCs and AFWA regions do not perfectly align, so these results can only generally point to regional trends.

Resource Needs

The top five resources wanted by state fish and wildlife agencies are

1. best management practices under expected future conditions (57%),
2. case studies and examples of successful adaptation implementation (51%),
3. information about climate impacts on specific species or habitat (50%),
4. training and education about on-the-ground implementation (41%), and
5. training and education about decision support tools (41%).

As is the case with resource use, this list of resource needs does not necessarily indicate widespread need by all staff within an agency, nor would the provision of these resources completely meet a need. As one respondent noted, individual staff are “doing their best to drink from a firehouse of information and coordinate with each other, but the best tools and resources would have to be distilled to the most important actions to be additive.” In other words, as useful as more resources and information may be, more prioritization of resources and capacity to use those resources is equally as important. A full list of resource needs is included in Appendix 2.

Many of these top resource needs have remained the same over the past several years (Table 2). Since the 2020 survey, the most needed resources have all related to implementing climate adaptation, with best management practices and examples of adaptation identified consistently as the top two most commonly selected resources. More recently, trainings related to implementing climate adaptation have also emerged as critical needs. However, there has been a shift in resource needs over the longer term. The first several iterations of the AFWA climate adaptation survey demonstrate that in the 2010s, most of the resource needs relate to assessing climate change and climate impacts (Table 2). This shift mirrors the pattern in adaptation activities described above that show adaptation planning outpacing implementation, though agencies are taking steps to advancing implementation.

Table 2. Climate adaptation resources most needed by state fish and wildlife agencies, identified through the AFWA climate adaptation survey.

Rank	2012	2018	2020	2022	2026
1	vulnerability assessments	invasive species range shifts	best management practice under climate change	best management practice under climate change	best management practice under climate change
2	downscaled climate models	habitat connectivity	examples of adaptation	examples of adaptation	examples of adaptation
3	phenological correlation	adaptive capacity	climate impact on species and habitats	climate impact on species and habitats	climate impact on species and habitats
4	relation of forest health to fish and wildlife	water quality and quantity	biological response models	training on implementation	training on implementation
5					training on decision support tools

Best management practices and case studies, or examples of adaptation, remain among the top most wanted resources for all regions. However, there is some regional variation for other commonly needed resources (Figure 10). In the Midwest, there is additional interest in policy guidance (31%) and regional climate projections (31%). In the Northeast, there is outsized interest in trainings on decision support tools (50%) and on-the-ground implementation (50%). In the Southeast, there is substantial interest in climate impacts on specific species and habitats (62%) and habitat connectivity information (62%). Resource needs of Western states overlap with other regions, with considerable interest in information about climate impacts on specific species and habitats (52%).

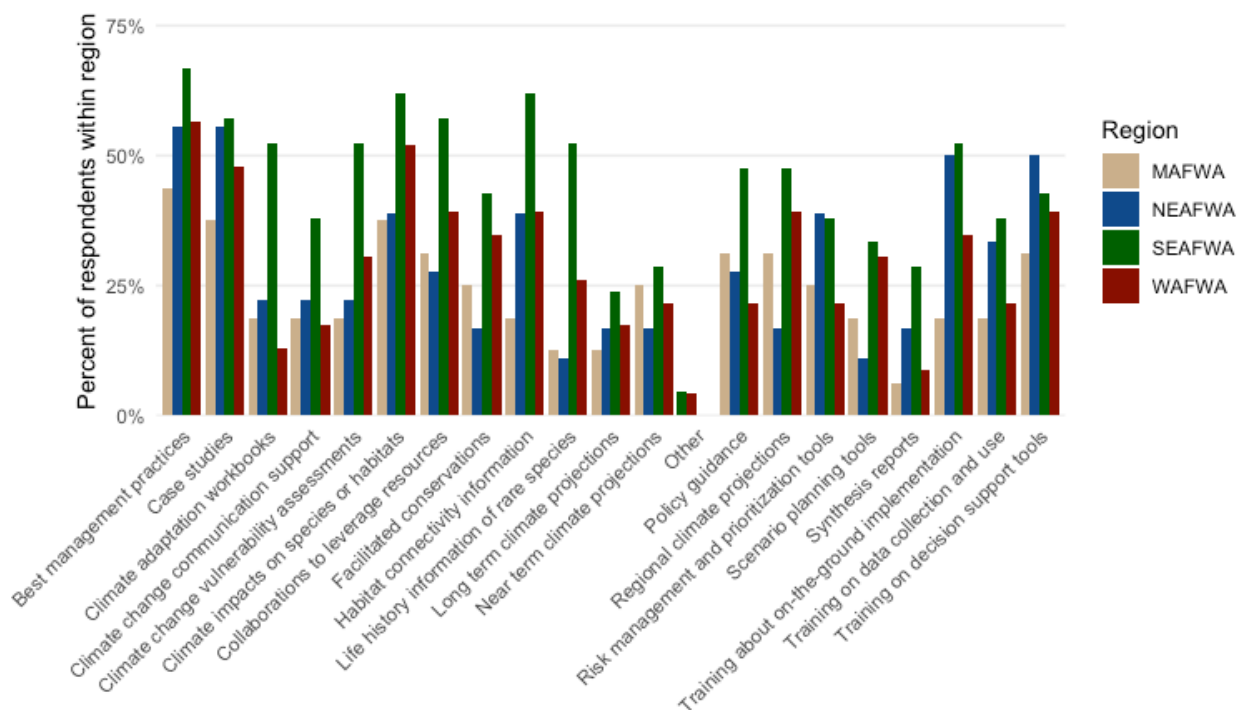


Figure 10. Resource needs identified by state fish and wildlife agencies. Percentages calculated within each AFWA region.

Information Delivery

States not only need the appropriate information and products, but the resources need to be accessible and communicated effectively. There are many formats for delivering and obtaining information. The most preferred formats for information delivery are webinars (56%), online resources (e.g., databases; 47%), workshops and in-person trainings (43%), and visualization tools (39%). There are some minor regional differences in order of preference (Figure 11). States within the Midwest and Western AFWA regions seem to prefer more synchronous information delivery as webinars (MAFWA, 68%; WAFWA, 43%) and workshops (MAFWA, 50%; WAFWA 39%) were most selected. Comparatively, states within the Northeast and Southeast reported a slight preference for

asynchronous information formats, with online resources (NEAFWA, 56%; SEAFWA 62%) and visualization tools (NEAFWA, 50%; SEAFWA, 48%) more frequently selected.

The results identified here can provide a baseline for organizations that develop the adaptation resources that states are using. However, ideally, information delivery should be targeted to each audience, and several respondents noted the value of co-production of information working with individual states to meet their needs. Furthermore, providing information and products through multiple formats can enhance effective communication.

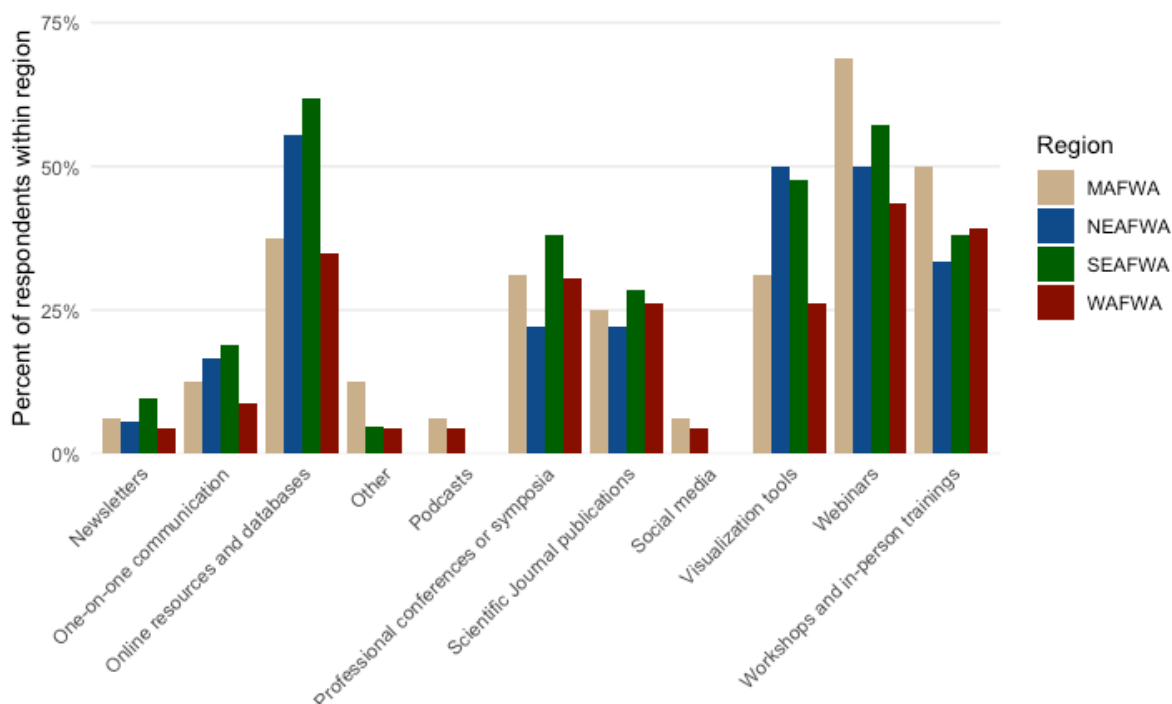


Figure 11. Preferred formats for information delivery by state fish and wildlife agencies. Percentages calculated within each AFWA region.

Conclusion

State fish and wildlife agencies are facing numerous management challenges driven by climate impacts on the species and ecosystems. With growing recognition of these challenges and the urgency needed to address them, agencies demonstrate strong momentum in adaptation planning. Key barriers including limited capacity, competing priorities, and critical information gaps continue to constrain broad implementation. Results reveal that leveraging partnership to meet information needs, sustaining strategic support, and increasing internal climate communication are key to advancing adaptation and promoting resilience in fish and wildlife management.

Appendix 1. Fish and Wildlife Agencies

Table 1. State, provincial, and territorial fish and wildlife agencies and their affiliations with regional AFWA associations. This table does not indicate whether there is a survey response associated with the agency, as all respondents were guaranteed confidentiality.

Agency	USA	Canada	Midwest	Northeast	Southeast	West
Alabama Division of Wildlife and Freshwater Fisheries	X				X	
Alaska Department of Fish and Game	X					X
Alberta Environment and Parks		X				X
American Samoa Department of Marine and Wildlife Resources	X					
Arizona Game and Fish Department	X					X
Arkansas Game and Fish Commission	X				X	
British Columbia Ministry of Forests, Lands & Natural Resource Operations		X				X
California Department of Fish and Wildlife	X					X
Canadian Wildlife Service		X				
Colorado Division of Parks and Wildlife	X					X
Connecticut Bureau of Natural Resources	X			X		
Delaware Division of Fish and Wildlife	X			X		
Florida Fish and Wildlife Conservation Commission	X				X	
Georgia Wildlife Resources Division	X				X	
Guam Department of Agriculture Division of Aquatic and Wildlife Resources	X					
Hawaii Department of Land and Natural Resources	X					
Idaho Department of Fish and Game	X					X
Illinois Department of Natural Resources	X		X			
Indiana Division of Fish and Wildlife	X		X			



Iowa Department of Natural Resources	X		X			
Kansas Department of Wildlife and Parks	X		X			X
Kentucky Department of Fish and Wildlife Resources	X		X		X	
Louisiana Department of Wildlife and Fisheries	X				X	
Maine Department of Inland Fisheries & Wildlife	X			X		
Manitoba Wildlife Branch		X	X			
Maryland Wildlife and Heritage Service	X			X		
Massachusetts Division of Fisheries & Wildlife	X			X		
Michigan Department of Natural Resources	X		X			
Minnesota Division of Fish and Wildlife	X		X			
Mississippi Department of Wildlife, Fisheries and Parks	X				X	
Missouri Department of Conservation	X		X		X	
Montana Department of Fish, Wildlife & Parks	X					X
Nebraska Game and Parks Commission	X		X			X
Nevada Department of Wildlife	X					X
New Brunswick Department of Energy and Resource Development		X		X		
New Hampshire Fish and Game Department	X			X		
New Jersey Division of Fish and Wildlife	X			X		
New Mexico Game and Fish Department	X					X
New York Division of Fish and Wildlife	X			X		
Newfoundland Department of Environment and Conservation		X		X		
North Carolina Wildlife Resources Commission	X				X	
North Dakota Game and Fish Department	X		X			X

Northern Mariana Islands Department of Lands and Natural Resources	X					
Northwest Territories Department of Environment and Natural Resources		X				X
Nova Scotia Department of Natural Resources		X		X		
Nunavut Wildlife		X				
Ohio Division of Wildlife	X		X			
Oklahoma Department of Wildlife Conservation	X				X	X
Ontario Ministry of Natural Resources and Forestry		X	X	X		
Oregon Department of Fish and Wildlife	X					X
Pennsylvania Fish and Boat Commission	X			X		
Pennsylvania Game Commission	X			X		
Prince Edward Island Forests, Fish and Wildlife Division		X		X		
Puerto Rico Department of Natural and Environmental Resources	X				X	
Quebec Ministère des Forêts, de la Faune et des Parcs		X		X		
Rhode Island Department of Environmental Management	X			X		
Saskatchewan Ministry of Environment		X	X			X
South Carolina Department of Natural Resources	X				X	
South Dakota Game, Fish and Parks Department	X		X			X
Tennessee Wildlife Resources Agency	X				X	
Texas Parks and Wildlife Department	X				X	X
Utah Division of Wildlife Resources	X					X
Vermont Department of Fish and Wildlife	X			X		

Virgin Islands Department of Planning and Natural Resources	X				X	
Virginia Department of Wildlife Resources	X			X	X	
Washington Department of Fish and Wildlife	X					X
Washington, DC Fisheries/Wildlife Division	X			X		
West Virginia Division of Natural Resources	X			X	X	
Wisconsin Department of Natural Resources	X		X			
Wyoming Game and Fish Department	X					X
Yukon Department of Environment		X				X

Appendix 2. Adaptation Resources

Table 1. Adaptation resources used by state fish and wildlife agencies ordered based on reported use by survey respondents.

Adaptation resource used	Percent of respondents
Regional or subregional projections of future climate conditions (e.g., downscaled models, information from the National Climate Assessment, etc.)	57%
Partnerships and collaborations to leverage resources and expertise	56%
Habitat connectivity information	54%
Life history information and distribution of rare species	51%
Climate impacts on specific species or habitats	47%
Expert opinion of climate scientists and natural resource managers	46%
Longer term projections of future climate or ecosystem conditions (> 30 years)	44%
Climate change vulnerability or risk assessments (e.g. NatureServe Climate Change Vulnerability Index, NatureServe Habitat Climate Change Vulnerability Index, U.S. Forest Service SAVS, biological response models)	43%
Near term projections of future climate or ecosystem conditions (< 30 years)	41%
Guidance on incorporating climate adaptation into agency plans or policies	34%
Best management practices under expected future conditions	29%
Examples of successful adaptation implementation (e.g. case studies)	29%
Synthesis reports	24%
Scenario planning tools (e.g. U.S. Forest Services Climate Smart Planning and Management, Climate Toolbox, Multivariate Adaptive Constructed Analogs (MACA) database)	23%
Risk management and prioritization tools	19%
Climate adaptation workbooks or templates	17%
Other ^a	11%

^a Other resources self-reported by respondents include refugia maps, land type and conservation maps from partners (e.g., The Nature Conservancy), state-based weather and climate monitoring networks, peer-reviewed literature

Table 2. Adaptation resources wanted by state fish and wildlife agencies ordered based on reported use by survey respondents.

Adaptation resources wanted	Percent of respondents
Best management practices under expected future conditions	57%
Case studies and examples of successful adaptation implementation	51%
Climate impacts on species or habitats	50%
Training and education about on-the-ground implementation	41%
Training and education about using decision support tools	41%
Habitat connectivity information	39%
Facilitated conversations between climate scientists and natural resource managers	33%
Risk management and prioritization tools	33%
Guidance on incorporating climate adaptation into agency plans or policies	31%

Regional or subregional projections of future climate conditions (e.g., downscaled models, information from the National Climate Assessment, etc.)	31%
Climate change vulnerability or risk assessments (e.g. NatureServe Climate Change Vulnerability Index, NatureServe Habitat Climate Change Vulnerability Index, U.S. Forest Service SAVS, biological response models)	30%
Training and education on data collection and use (i.e., translating data into a format that would be useful for managers)	29%
Climate change communication support for engaging the public	27%
Scenario planning tools (e.g., U.S. Forest Services Climate Smart Planning and Management, The Climate Toolbox, Multivariate Adaptive Constructed Analogs (MACA) database, etc.)	27%
Climate adaptation workbooks or templates	24%
Life history information and distribution of rare species	24%
Near term projections of future climate or ecosystem conditions (< 30 years)	23%
Longer term projections of future climate or ecosystem conditions (> 30 years)	19%
Synthesis reports	16%
Other ^a	3%

^a One respondent further clarified that case studies and climate impacts would be most useful as state-based resources, both for ensuring relevance and for creating place-based messages that are more effective to communicate the importance to the public.