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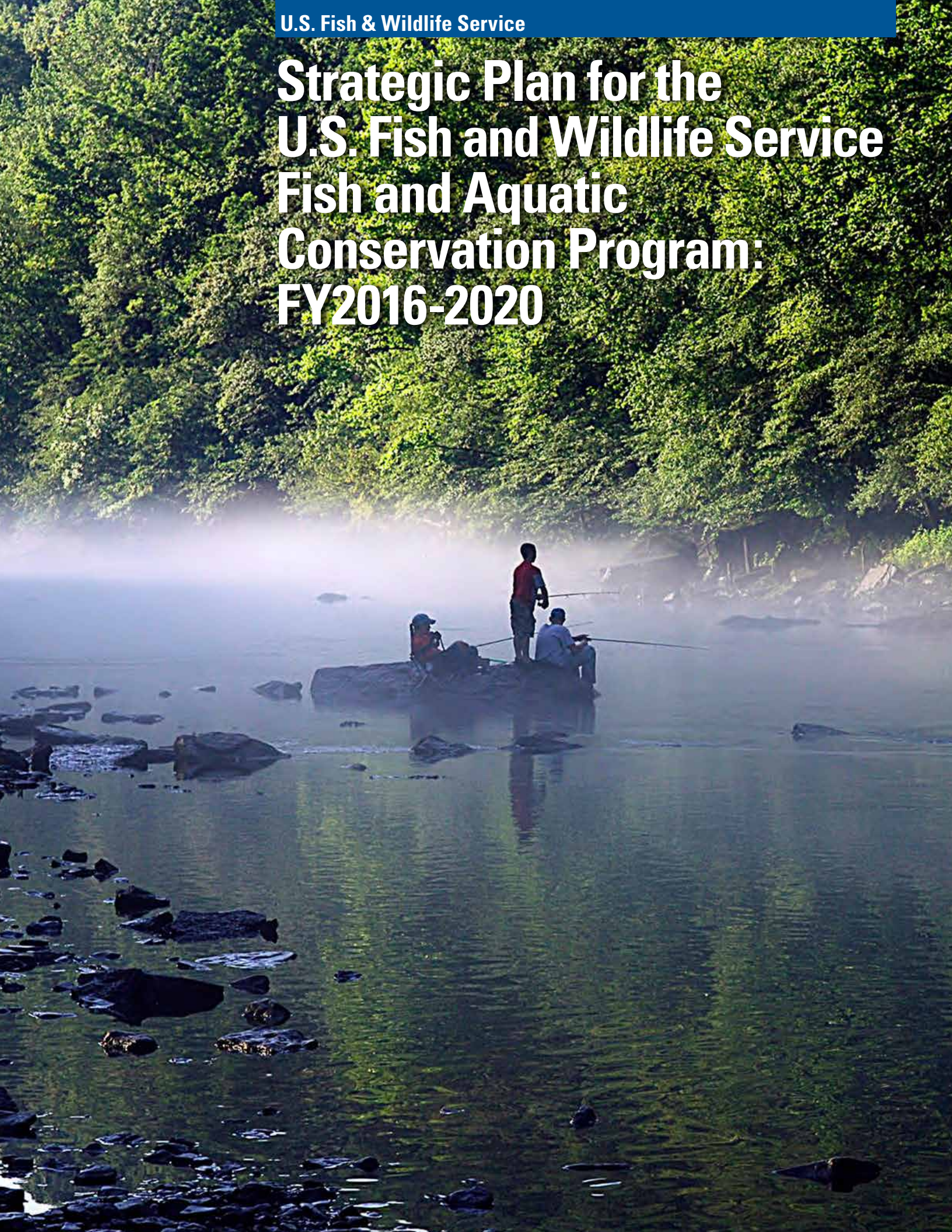
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Strategic Plan for the U.S. Fish and Wildlife Service Fish and Aquatic Conservation Program: FY2016-2020



Mission:

*We work with our partners
and engage the public, using
a science-based approach,
to conserve, restore and enhance
fish and other aquatic resources
for the continuing benefit of
the American people.*



Message from the Director

The U.S. Fish and Wildlife Service has a long and proud history of working to conserve and protect the nation's fish and other aquatic resources. Working collaboratively with our federal colleagues, tribes, state fish and wildlife agencies, the outdoor recreation industry, academia and non-profit conservation organizations, we have made significant progress to improve management of our fisheries and protect and restore the habitats on which these and other species depend. Our aquatic resources, however, remain at risk. In particular, fragmentation and loss of aquatic habitats, invasive species, and climate change pose significant challenges to our ongoing ability to sustain these resources and the myriad of benefits they provide for the American people.

A key factor in our future success will be our ability to use our limited resources efficiently and cost-effectively in order to focus on our highest conservation priorities. The framework provided by this strategic plan identifies seven goals that will guide our work over the next five years. Working with our partners and stakeholders, and informed by this strategic plan, the Service's talented and highly dedicated staff will utilize our national network of world-class facilities to address these conservation challenges and sustain the nation's aquatic resources for future generations.



*Dan Ashe, Director
U.S. Fish and Wildlife Service*

A handwritten signature in cursive script that reads "Dan M. Ashe".



*David Hoskins, Assistant Director
Fish and Aquatic Conservation*

Message from the Assistant Director

The Fish and Aquatic Conservation program of the U.S. Fish and Wildlife Service is uniquely positioned and qualified to address the significant and constantly evolving conservation challenges facing our nation's aquatic resources. Our success in addressing new and emerging threats, such as invasive species and climate change, depends on our ability to work in close collaboration with our partners and stakeholders to identify shared priorities and make meaningful and measurable progress toward clearly defined goals, objectives and strategies.

By identifying the important goals, objectives and strategies we intend to pursue over the next five years, this strategic plan will help us direct our resources to our highest priorities. As a result, we will not only be better positioned to fulfill the Plan's goals but will also ensure that the Fish and Aquatic Conservation program is fit for the future. We look forward to working with our many colleagues, partners and stakeholders to implement this new strategic plan for the benefit of all Americans.

A handwritten signature in cursive script that reads "David W. Hoskins".



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I. Executive Summary

For over 140 years, the U.S. Fish and Wildlife Service has been a partner on the American landscape in the conservation and restoration of our nation's aquatic resources. Since its inception as the United States Commission on Fish and Fisheries, the Service has worked collaboratively with tribes, states, landowners, partners and stakeholders to achieve the goals of healthy, self-sustaining populations of fish and other aquatic species and the conservation or restoration of their habitats. The Service conducts this work to ensure the health of our nation's aquatic ecosystems and to enable Americans to realize the ecological, recreational and economic benefits provided by these critically important resources.

Despite the Service's work, the nation's rich and diverse fish and other aquatic resources are under constant threat. Loss and alteration of habitat, a growing number of invasive species, overharvest, competition for water, and climate change are putting increasing numbers of freshwater species at risk.

The number of populations of fish, amphibian, crustacean, and mussel species listed as threatened or endangered under the Endangered Species Act now stands at over 300.¹ An even larger number of species and populations have declined significantly in abundance and are considered imperiled.

The mission and profile of the Service's Fish and Aquatic Conservation (FAC) program has evolved considerably since its inception in 1871. Originally the mission of the Service's fisheries program was primarily to restore fish stocks for commercial harvest. Today, the FAC program operates across the nation to recover and restore endangered, threatened and imperiled species, fulfill our tribal trust and mitigation responsibilities, and conserve a wider range of fisheries and other aquatic resources. The program also works to restore habitat across the landscape, prevent and control invasive species, assist Native American tribes and other partners in managing their fish and wildlife resources, advance fisheries and aquatic sciences and technologies, foster outdoor recreational opportunities, educate the public on the economic and ecological benefits of aquatic species and their habitats, and address new and emerging challenges - such as climate change.

The Service's aquatic conservation work is carried out by a dedicated and highly skilled workforce of more than 700 employees nationwide. FAC staff maintain and operate a national Headquarters Office, 8 Regional Offices, 72 National Fish Hatcheries, a Historic National Fish Hatchery, 9 Fish Health Centers, 7 Fish Technology Centers, the Aquatic Animal Drug Approval Partnership, and 65 Fish and Wildlife Conservation Offices. The FAC program, in close collaboration with other federal agencies, tribes, states, landowners, partners and stakeholders, strives to conserve, restore and enhance aquatic species and their habitats, prevent and control the spread of aquatic invasive species, and connect the public to America's great outdoors.

This complex conservation portfolio reflects the challenge of managing aquatic species at a national scale in the 21st century. The broad responsibilities of the FAC program underscore the need for a focused vision and a roadmap to make smart, well-informed decisions that make the best use of limited resources for achieving our mission and long-term conservation goals.



Tishomingo National Fish Hatchery, 1949.

D.C. Booth Historic National Fish Hatchery and Archives

¹ U.S. Fish and Wildlife Service ESA Species Database. Available: http://ecos.fws.gov/tess_public/pub/boxScore.jsp

This *Strategic Plan for the U.S. Fish and Wildlife Service Fish and Aquatic Conservation Program: FY2016-2020 (Plan)* is built around seven core goals:

- Conserve Aquatic Species;
- Conserve, Restore, and Enhance Aquatic Habitats;
- Manage Aquatic Invasive Species;
- Fulfill Tribal Trust and Subsistence Responsibilities;
- Enhance Recreational Fishing and Other Public Uses of Aquatic Resources;
- Increase Staffing Levels, Technical Capabilities, and Natural and Physical Assets to Fully Meet Our Mission; and
- Educate and Engage the Public and our Partners to Advance our Conservation Mission.

Each of these goals acknowledges the specific and very real challenges we face today in achieving our mission. Each goal also contains specific objectives and related strategies to address those challenges and achieve measurable conservation successes. The Plan builds upon prior FAC Strategic Plans and the recommendations of the Sport Fishing and Boating Partnership Council (SFBPC), contained in their report, *Strategic Vision for Fish and Aquatic Resource Conservation in the Fish and Wildlife Service: A Partnership Perspective*, and provided to the Service in July 2013. This report resulted from a collaborative visioning effort conducted by the SFBPC on behalf of the FAC program.

The broad framework provided by the Plan will serve as a foundation for the development and implementation of annual operational plans by Headquarters staff and staff in our eight Regions. The Plan will serve as FAC's overarching strategic direction for the next five years. Nevertheless, the Plan is considered a living document - to be refined in response to new information and enhanced understanding of emerging environmental challenges and opportunities.



Biologist releasing a tagged lake sturgeon.

USFWS

II. Introduction

The U.S. Fish and Wildlife Service's (Service) mission is "working with others, to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people." Since 1871 the Service has worked with other federal agencies, tribes, states, landowners, partners and stakeholders to conserve and enhance the nation's fish and wildlife resources. Whether a citizen's interests are centered on conservation of these resources, casting a fishing line for smallmouth bass in their local river or lake, or ensuring that their economic or cultural stake in these resources is preserved, the Service contributes by fulfilling its mission and stewardship responsibilities for fish, wildlife, and their habitats.

The Service's FAC program builds on our 144-year stewardship tradition, the previous strategic plan for the program², and the recent evaluation by the Sport Fishing and Boating Partnership Council³ to update the program's strategic plan. This update is intended to better reflect and address today's conservation challenges. Most notably, these include: loss, fragmentation, and degradation of habitat; overharvest; competition for water; introduction and establishment of invasive species; and climate change. Collectively, these conservation challenges not only continue to pose significant risks to the nation's freshwater aquatic and other natural resources but increasingly jeopardize the ecological, recreational and economic benefits they provide to the nation.

The plan identifies seven goals, each representing a fundamental theme and functional component of the FAC program's work. All seven goals are interdependent and necessary to accomplish our mission. For each goal, the plan begins with a description of the specific challenges making the goal necessary. Objectives and strategies are then presented to accomplish each respective goal. These objectives and strategies are intended to include sufficient detail to allow managers to design annual field operations throughout the Service's eight regions. This includes operations of the Service's 65 Fish and Wildlife Conservation Offices, 72 National Fish Hatcheries, a Historic National Fish Hatchery, 7 Fish Technology and 9 Fish Health Centers, and the Aquatic Animal Drug Approval Partnership. In addition, it includes core functions and activities administered by Service staff to assess and conserve aquatic species, protect, restore and enhance aquatic habitats across landscapes, and prevent and control invasive species.

The FAC program values partner and stakeholder collaboration, stewardship, science-based decision making, transparency, efficiency, and adaptive management. The Plan is a road map which will guide our work with other federal agencies, tribes, states, landowners, partners, and stakeholders. Working together and relying on the experience, expertise and dedication of the FAC program's more than 700 employees, it is intended to provide a positive future for all Americans who care about or benefit from the nation's fish and other aquatic resources.



Carl Zitsman/USFWS

² U.S. Fish and Wildlife Service. 2004. *Conserving America's Fisheries – Fisheries Program Vision of the Future*. Available: <http://www.fws.gov/fisheries>.

³ Sport Fishing and Boating Partnership Council. 2013. *Strategic Vision for Fish and Aquatic Resource Conservation in the Fish and Wildlife Service: A Partnership Perspective*.

III. Mission

We work with our partners and engage the public, using a science-based approach, to conserve, restore and enhance fish and other aquatic resources for the continuing benefit of the American people.

As reflected in this mission statement, conservation is at the forefront of the reason we exist. From the very beginning of the Fish and Wildlife Service, this responsibility has been preeminent. In fact, our very first assignment was “...to ascertain whether any and what diminution in the number of food fishes of the coast and inland lakes has occurred.”⁴ We also are acutely aware of the need to involve stakeholders and partners in our mission if we are going to succeed. And, perhaps most important, we recognize that we do this work for the American people—both the present generation who benefit today and future generations to whom we will pass the legacy of conserving America’s aquatic resources.

IV. Vision

While our mission addresses the work we do every day, we also aspire to move in a positive direction in the future. Mindful of our commitment to work with others while recognizing there is a special need and role for national leadership:

The Fish and Aquatic Conservation program will be a national leader in achieving sustainable populations of fish and other aquatic species and conserving and restoring their habitats for the benefit of current and future generations.



Katrina Mueller/USFWS

Juvenile salmonids schooling in Caswell Creek, Alaska.

⁴ Madison, Mark. 2009. “Spencer Fullerton Baird” in Eddies, Special Issue, p. 6.



V. Values

During discussions about the future of the FAC program, the following core values emerged. These priorities underpin the goals, objectives and strategies of our strategic plan.

We value:

- Stewardship of our nation's diverse and abundant natural resources and our responsibility for managing these in trust for the American public;
- Integrity that is achieved through honesty and transparency, sound financial management and oversight, and professional and ethical behavior;
- Excellence that comes from science-based management, delivering outstanding service, financial efficiency and effectiveness, and the continuous improvement in our products and services;
- Teamwork and partnerships fostered by respecting the views of our stakeholders, and close collaboration and communication with all the people we work with;
- Innovation that proactively meets challenges, promotes a culture of finding solutions, and rewards responsible risk taking; and
- Professionalism through the development of employees, learning from the past to plan for the future, and cultivating a workforce that is matched to the needs of the future.

Goal 1: Conserve Aquatic Species

Conservation Challenge

America's aquatic ecosystems have historically sustained some of the most abundant and diverse communities of fish, invertebrates, and plants in the world. In the waters of the United States alone, over 1,000 native fish and mussel species have been documented. Many of these species, such as salmon, trout, Pacific lamprey, river herring, American shad, and striped bass are important cultural, economic and recreational resources.

However, aquatic species represent some of the most imperiled organisms both nationally and globally. Currently, there are 155 fish and 88 mussel species listed under the Endangered Species Act in the United States.⁵ According to a recently published study by the U.S. Geological Survey, a total of 39 species and 18 subspecies of fish were declared extinct in North America between 1898 and 2006 and the rate of extinction is accelerating. Based on current population status and trends for fish species categorized as federally threatened and endangered, researchers estimate that an additional 53-86 species of freshwater fish may be extinct by 2050.⁶

The challenge of conserving our nation's fish and other aquatic resources is complex and involves addressing the impacts of multiple threats, including non-native species, overharvest, degradation, fragmentation, and loss of habitat and competition for limited water resources. In addition to ensuring that we are enlisting the right tools (e.g. a hatchery to propagate and reintroduce an imperiled species) to address species-specific needs, effectively conserving aquatic species is further confounded by the logistical difficulties inherent in scientifically monitoring aquatic ecosystems.

Many larger, long-lived aquatic species such as sturgeon also often take decades to recover from population declines, even when significant threats have been ameliorated. To be successful, our work requires a clear vision and an ongoing, long-term commitment of resources with the understanding that species recovery can take years or even decades to occur.

Solutions to conserving and recovering populations of native aquatic species involve many partners. As a result, solutions often require compromises among conflicting management goals and viewpoints on resource value and use. To be successful strategies must clearly define roles, responsibilities, and expectations of each agency or organization; make strong use of partnerships, collaboration and resource leveraging; contain measurable, time-bound goals; be adaptive; and be informed by current and standard data on population status and trends.

In order to achieve the greatest conservation benefit with limited resources – including but not limited to monetary, human, and natural resources – we must focus efforts on our highest priorities. We will work with tribes, states, and other natural resource management agencies to identify priority species that have the greatest conservation need. We will focus our conservation efforts and resources on actions that are most likely to maintain, enhance, restore and recover these species.



Northern riffleshell mussel.

⁵ U.S. Fish and Wildlife Service ESA Species Database. Available: http://ecos.fws.gov/tess_public/pub/boxScore.jsp

⁶ Burkhead, Noel M. 2012. Extinction Rates in North American Freshwater Fishes, 1900–2010. *BioScience* 62(9):798-808.

Goal 1: Conserve Aquatic Species

Objective 1: Recover listed species such that protection under the Endangered Species Act is no longer needed.

- Work within the Service and with partners to identify and prioritize threatened and endangered species for which the FAC program has a role.
- Engage in developing recovery plans that identify population objectives and recovery criteria for these threatened and endangered species.
- Prioritize and implement recovery plan tasks that are most likely to produce measurable results in achieving population objectives and recovery criteria.
- Evaluate the effectiveness of our conservation actions and adapt as necessary.

Objective 2: Restore and enhance declining populations to self-sustaining levels to preclude listing under the Endangered Species Act.

- Work within the Service and with partners to identify and prioritize declining species and populations for which the FAC program has a role.
- Identify population objectives and restoration criteria for declining species.
- Prioritize and implement conservation actions that are most likely to produce measurable results in achieving self-sustaining population objectives and restoration criteria.
- Evaluate effectiveness of our conservation actions and adapt as necessary.

Objective 3: Prevent declines of other priority species by addressing recognized threats as soon as possible.

- Work within the Service and with partners to identify and prioritize species and populations that are likely to decline.
- Identify threats that could cause significant species declines and potential actions to minimize or eliminate these potential adverse impacts on priority species.
- Prioritize and implement conservation actions that are most likely to eliminate or reduce impacts of these threats on priority species.
- Evaluate effectiveness of our conservation actions and adapt as necessary.

Goal 2: Conserve, Restore, and Enhance Aquatic Habitats

Conservation Challenge

The United States possesses abundant and diverse marine, estuarine, river, lake, stream, pond, and wetland habitats. These systems host complex communities of species dependent upon healthy, intact aquatic habitats to maintain self-sustaining populations. In turn, many of these species support economically, culturally and recreationally valuable fisheries.

Although our nation's water resources are vast and encompass some of the largest lake and river systems in the world, including a total of over 3.5 million miles of rivers and streams from coast-to-coast⁷ and one-fifth of the world's surface freshwater just in the Great Lakes⁸ alone, these same systems are becoming increasingly degraded and fragmented as a result of human activities. These activities include agricultural, urban and transportation development, discharge of pollutants, construction of dams for flood control and hydropower generation, and the diversion of water resources for human consumptive, agricultural uses, and industrial purposes. For example, nationwide there are over 6 million known man-made barriers to aquatic species – including culverts dams, dikes, water diversion structures, and levees - that restrict or completely eliminate the ability of fish and other organisms to move within and between rivers, streams, and adjoining wetlands.⁹

Habitat loss, fragmentation, and degradation are some of the primary factors in the decline of native species. Point and non-point sources of pollution are also degrading water quality and habitat, impacts that may be significantly amplified during storm events. While advances have been made in wastewater treatment, best-management practices for farming and land use, and removal of barriers to reconnect historic river corridors, aquatic species continue to be impacted by agricultural and industrial practices, some of which have been in place since the 19th century. Many of the same factors that have degraded aquatic habitats are also having parallel and equally serious impacts on terrestrial habitats, which contribute to the further degradation of downstream aquatic systems.

Compounding these challenges, growing urbanization is placing ever increasing demands on water use for municipal, industrial, and drainage/flood control. This problem is especially acute in the western and southwestern United States, where water supplies are already limited, and increased demand for water for human consumption often conflicts with natural resources. In addition, climate change is expected to lead to further changes in precipitation patterns and higher stream temperatures. Climate-induced alterations in freshwater habitats, in turn, may place additional stress on sensitive native aquatic species, ranging from eastern brook trout to bull trout in the west, which depend on a reliable and adequate supply of clean, cold water to survive.

Adequate resources to implement geographically broad, long-term strategies to remove barriers to fish passage, institute land and water best management practices, and protect, restore, and enhance aquatic habitats in the face of these challenges are lacking. Success in conservation and recovery of priority aquatic species identified under Goal 1 also requires a more holistic approach that emphasizes protecting and restoring functional landscapes and thus considers the aquatic and upland habitat requirements of these species throughout their life stages.

To consistently and strategically focus our resources and expertise where we can have the greatest positive impact, the Service is relying on Strategic Habitat Conservation (SHC).¹⁰ Utilizing this conservation framework, we are working across Service programs and in collaboration with our federal, state, tribal and other partners to identify population and management objectives; address the greatest conservation challenges; leverage resources to ensure efficient and effective conservation delivery; and measure and evaluate our progress. By relying on and implementing the principles of SHC at a landscape-scale within our growing national network of Landscape Conservation Cooperatives that transcend organizational, geographic and jurisdictional boundaries, we can help realize lasting benefits for America's fish and wildlife.



Removal of dam to improve fish passage.

Callie McMinnigal/USFWS

⁷ U.S. Environmental Protection Agency. Water: River and Streams. Available: <http://water.epa.gov/type/rsl/index.cfm>

⁸ U.S. Environmental Protection Agency. Great Lakes Geography and Hydrology. Available: www.epa.gov/greatlakes/basicinfo.html.

⁹ U.S. Fish and Wildlife Service. 2014. National Fish Passage Program FY2013 Annual Report.

¹⁰ U.S. Fish and Wildlife Service. 2008. Strategic Habitat Conservation Handbook: A Guide to Implementing the Technical Elements of Strategic Habitat Conservation (Version 1.0). Available: www.fws.gov/landscape-conservation/pdf/SHCHandbook.pdf.

Goal 2: Conserve, Restore, and Enhance Aquatic Habitats

Objective 1: Develop landscape-scale habitat conservation strategies using the SHC Framework.

- Identify and evaluate freshwater and coastal habitats for FAC priority species.
- Set habitat conservation targets for FAC priority species in collaboration with federal, state, tribal, and other partners.
- Develop landscape scale habitat conservation objectives and strategies to guide delivery of conservation actions, adaptive management, and progress measurement.

Objective 2: Conserve, restore, and enhance habitats using available FAC tools.

- Utilize the National Fish Habitat Action Plan and the Fish Habitat Partnerships to implement habitat conservation actions for high priority aquatic species.
- Expand the National Fish Passage Program to achieve landscape-scale conservation, restoration, and enhancement of river and floodplain connectivity for high priority aquatic species.
- Develop Sikes Act Integrated Natural Resource Management Plans to identify and deliver habitat conservation actions for high priority aquatic and other species on Department of Defense installations.

Objective 3: Work with federal, tribal, state and other partners to implement additional actions to achieve landscape-scale habitat conservation objectives.

- Collaborate with federal, state, and local agencies to develop and implement best management practices to help prevent further degradation of aquatic habitats on public and private lands.
- Enlist our network of FAC field and regional offices to inform, coordinate, and implement landscape-scale habitat conservation actions across Service programs, with local, tribal, state and federal agencies, and with our other partners.
- Utilize other existing initiatives and partnerships (e.g. Urban Waters Federal Partnership) to promote aquatic habitat conservation, restoration, and enhancement nationwide.

Goal 3: Manage Aquatic Invasive Species

Conservation Challenge

Invasive species severely threaten the natural landscape of the United States. They are contributing to declines or extinctions of numerous native plants and animals, impacting ecosystem function, and cause economic impacts totaling billions of dollars annually.¹¹ Aquatic invasive species are also a growing challenge nationwide to the conservation and recovery of native fish, mussels, and other aquatic organisms.

The threat of aquatic invasive species in the United States has steadily increased since the rapid growth of industry and transportation beginning in the 19th century. This threat has accelerated over the past several decades spurred by significant increases in global trade, travel, and tourism. Direct commerce of organisms, both legal and illegal (e.g., via the internet), has further increased the threat of invasive non-native species.

Managing the threat of aquatic invasive species in the 21st Century must recognize the existence of a global economy with increased transportation volume and decreased transit times among trading countries.

To date, managing aquatic invasive species has relied on a largely reactive approach, triggered in response to a detection of newly identified but already introduced non-native species. While examples of successful control programs exist, such as the U.S. - Canada Sea Lamprey Management Program, eradication of aquatic invasive species is almost always impossible after a species is established, especially in large, complex watersheds. New and innovative technologies are needed to efficiently and cost-effectively control the spread of established species.

More recently, federal management of aquatic invasive species has focused on individual species that have become particularly problematic in a specific region or watershed (e.g. Asian carp, zebra mussels, and quagga mussels). National management of these aquatic invasive species has typically been coordinated through national planning efforts led by the Aquatic Nuisance Species Task Force. While addressing these problem species is important, these efforts cannot – and should not – take the place of a comprehensive national program to proactively identify and prevent the introduction and establishment of invasive species that pose the highest potential risk, as first envisioned by the Lacey Act in 1900 and subsequent laws, such as the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990.¹²

An increased and more effective focus on prevention will require the development and use of state-of-the-art science and tools to identify the organisms and introduction pathways that pose the greatest risk. These tools can then be used to inform management policies, develop intervention strategies, and improve multijurisdictional collaboration as well as outreach and partnerships with industries, stakeholders, and consumers. Broader understanding by all citizens of their role in management of aquatic invasive species is integral to future success.



Asian carp leaping at the sound of a boat motor.

Chris Olds/USFWS

¹¹ Pimentel, D., R. Zuniga, and D. Morrison. 2005. Update on the environmental and economic costs associated with alien invasive species in the United States. *Ecological Economics*. 52(3):273-288.

¹² Digest of Federal Resource Laws of Interest to the U.S. Fish and Wildlife Service. Available: www.fws.gov/laws/lawsdigest/NONINDI.HTML

Goal 3: Manage Aquatic Invasive Species

Objective 1: Prevent introduction of potentially invasive species into the U.S.

- Conduct risk assessments for potentially high-risk species and introduction pathways.
- Utilize regulatory (i.e., prohibitions on importation) and voluntary mechanisms to reduce the risk of introduction of invasive species.
- Work with entities responsible for key pathways and vectors (e.g., boat ballast water) to reduce the risk of introduction of invasive species.

Objective 2: Work with tribes, states, and other partners to implement a national early detection and rapid response framework.

- Develop and provide the leadership for a comprehensive aquatic invasive species early detection program.
- Implement a nationally coordinated rapid response program for high-risk AIS taxa and pathways.

Objective 3: In collaboration with tribes, states and other partners, prevent the spread of potentially invasive species already in the U.S.

- Prioritize invasive species for spread prevention activities based on risk of spread, risk of harm, and potential for success.
- Utilize regulatory (e.g, prohibitions on interstate transport) and voluntary mechanisms to reduce the risk of spread of invasive species.
- Educate the public about invasive species threats so they can take action.

Objective 4: Manage established populations of AIS through population suppression.

- Prioritize AIS populations for suppression based on impacts to natural resources assets and potential for success.
- Develop and implement control plans to reduce high priority populations of AIS to acceptable target levels.
- Monitor effectiveness of population control mechanisms.

Goal 4: Fulfill Tribal Trust and Subsistence Responsibilities

Conservation Challenge



USFWS

Salmon fillets dry on a rack.

The natural resource management programs operated by tribes are designed to address the spiritual, cultural, medicinal, subsistence, recreational and economic needs of their community. As each tribe is a self-governing entity, there are a myriad of different combinations of management activities being undertaken on or adjacent to tribal lands to achieve the needs of their respective communities. These can vary widely by geographic location, tribal history, and culture.

The goals of tribal governments with respect to managing and utilizing natural resources may differ from those of federal and state agencies and non-governmental organizations, as well as non-tribal citizens and stakeholders. These differing goals can lead to potential conflict around expectations for harvest and other natural resource uses as well as related management activities such as enforcement, particularly on lands or waters managed by multiple jurisdictions.

At present, the federal government recognizes 566 tribal nations. The Service has a unique set of responsibilities and opportunities to work with federally recognized tribes and Native Alaskans. For decades, the FAC program has stocked fish on tribal lands and provided technical assistance for fish and wildlife resource management needs and on managing aquatic species for subsistence harvest. This includes co-management of salmon stocks in the Pacific Northwest as well as lake trout and other species in the Great Lakes.

The FAC program pursues these collaborative efforts not just to fulfill its tribal trust responsibilities and to promote sustainable management of culturally, economically and recreationally important tribal fisheries and wildlife, but also to realize opportunities for resource conservation to benefit all Americans. Tribes manage aquatic and terrestrial resources on 56 million acres of land. An additional 44 million acres are designated as Alaska Native lands in the United States.¹³ A significant portion of these lands contain valuable fish and wildlife habitats critical to the sustainability and well-being of tribal communities as well as nearby communities.

The FAC program is committed to fulfilling its tribal trust responsibilities, proactively engaging tribes at leadership levels, and building leadership-to-leadership trust consistent with the DOI Native American Policy. As part of this overall effort, it is essential that FAC staff understand and are routinely trained in tribal culture and governance structure. Because tribal Traditional Ecological Knowledge (TEK) plays an important role in management of many species, FAC staff also need to be well-versed in the role of TEK in conjunction with science-based management decisions.

Ultimately, strategies to support the FAC program and the Service in fulfilling its tribal trust obligations must go beyond simply elevating and communicating the need for a legally mandated level of engagement. They must include mechanisms to promote enhanced and ongoing communication, cooperation and trust with tribes and to build increased awareness of tribal culture and governance throughout the FAC program.

As part of this broader effort, we must conduct mutual, open and direct two-way communication in good faith to secure meaningful collaboration and consultation with the tribes in developing and implementing the FAC program. In addition, whenever we develop and implement specific policies, projects, and initiatives that affect tribal interests, we should strive to work with affected tribal governments to identify the respective roles, responsibilities, and obligations of both the Service and these tribal governments.

¹³ Sport Fishing and Boating Partnership Council. 2013. Strategic Vision for Fish and Aquatic Resource Conservation in the Fish and Wildlife Service: A Partnership Perspective.

Goal 4: Fulfill Tribal Trust and Subsistence Responsibilities

Objective 1: Promote a full understanding of the scope and importance of the FAC program's roles in meeting tribal trust fish and wildlife conservation obligations.

- Ensure FAC program staff are trained in tribal history and culture and versed in tribal trust obligations in coordination with the Service's Native American liaisons.
- Review existing policies, agreements, and treaties to compile a comprehensive list of FAC program responsibilities to tribes and consult with tribes and appropriate federal natural resource agencies to clarify respective roles, responsibilities, and obligations.
- Routinely update Service leadership and staff regarding the nature of the FAC program's tribal trust fish and wildlife management responsibilities and its relationship to the Service's mission.

Objective 2: Develop and maintain effective relationships between the Service and federally recognized tribes.

- Work with tribes to develop and implement training programs and to take better advantage of tribal TEK, experience, and perspectives in managing aquatic resources.
- Ensure effective coordination between the FAC program and tribes by convening regular meetings with consistent program representation at the appropriate levels with tribes.
- In cooperation with the Service's Native American liaisons, facilitate and convene meetings of Service staff, tribes, states, and other partners to address fish and wildlife management issues and resolve potential conflicts.
- In cooperation with the Service's Native American liaisons, facilitate regular, structured communication between executive tribal and Service leadership.

Objective 3: Deliver tribal trust fish and wildlife conservation and manage subsistence uses of fishery resources.

- Meet requested fish and wildlife management assistance needs of the tribes, consistent with available Service resources.
- Continually improve and implement in-season monitoring of fish populations to inform management actions necessary to meet escapements and subsistence harvest and conservation goals.
- Develop and implement communication strategies to ensure that subsistence fishers are aware of in-season harvest regulations and other actions needed to meet subsistence harvest goals.

Goal 5: Enhance Recreational Fishing and Other Public Uses of Aquatic Resources

Conservation Challenge

Recreational fishing is part of our national heritage and a very popular and family-oriented outdoor activity. It is also a major contributor to the nation's economy. The Service's most recent National Survey of Fishing, Hunting and Wildlife-Associated Recreation reported that in 2011 more than 33 million anglers generated nearly \$42 billion in expenditures.¹⁴

The Service has a long tradition of fostering public uses and enjoyment of aquatic resources through its work to conserve these resources, to support fishing and other aquatic outdoor recreational activities, and national education programs. An essential factor for our success in carrying out these initiatives is our strong partnerships with federal, tribal, state, outdoor industry and non-profit organizations.

The opportunity for Americans to go fishing and participate in other aquatic outdoor recreational activities hinges on our ability to conserve aquatic ecosystems that sustain healthy and abundant fish populations. By helping to maintain and increase the productivity of our nation's aquatic resources, our work to conserve fish species, protect, restore and enhance aquatic habitats, control invasive species, and fulfill tribal trust and subsistence responsibilities plays an integral role in supporting fishing and other recreational activities.

In addition, the Service helps maintain recreational fisheries by producing and stocking fish to mitigate for the impacts of federal water projects. It also provides technical, scientific and management expertise to federal agencies, tribes, states, partners and stakeholders to foster aquatic conservation and restoration actions, many of which directly benefit recreational fisheries.

Although the Service already works with a wide array of federal, tribal, state, and outdoor industry and non-profit organizations to enhance fishing and other aquatic outdoor recreational activities, we need to take better advantage of our own facilities and lands and reach out to the public, especially youth, to increase participation in these activities. Using FAC facilities, we will provide and promote opportunities for the public to go fishing and participate in other aquatic outdoor recreational activities. Fishing, in particular, is a very popular activity that not only depends upon healthy aquatic resources but can also help create and sustain a lifelong interest in stewardship of the natural environment.



Kayaking on the Charles River in Eastern Massachusetts.

¹⁴ U.S. Fish & Wildlife Service and U.S. Census Bureau. 2014. 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (revised February 2014). Available: www.census.gov/prod/2012pubs/fhw11-nat.pdf.

Goal 5: Enhance Recreational Fishing and Other Public Uses of Aquatic Resources

Objective 1: Leverage other FAC goals to conserve, restore and enhance aquatic species and their habitats, control invasive species, and fulfill tribal trust and subsistence responsibilities to maintain and increase the productivity of our nation's fishery resources.

- Work with federal agencies, tribes, states, partners, and stakeholders at a landscape scale to maintain healthy, abundant and sustainable recreational fisheries.
- Provide technical, scientific and management expertise to federal agencies, tribes, states, partners, and stakeholders to assist in sustainably managing recreational fisheries.

Objective 2: Use the National Fish Hatchery System to conserve, restore and enhance fishery resources and other aquatic species.

- Fulfill the Service's responsibilities to mitigate the impacts of federal water projects by identifying appropriate waters for stocking native and non-native mitigation fish and securing permanent funding to provide full reimbursement for Service mitigation programs.
- Produce and distribute fish eggs through the Service's national broodstock program to federal, tribal, and state facilities to help support and sustain recovery, restoration, tribal trust, mitigation and recreational fishing needs.
- Use the Service's national network of fish hatcheries, fish technology centers, fish health centers and the Aquatic Animal Drug Partnership Program to help maintain populations of native fish species at levels that can sustainably support recreational fishing.

Objective 3: Increase recreational fishing and other public uses and enjoyment of aquatic resources.

- Conduct programs and events on Service facilities and lands (e.g. the National Fish Hatchery System, Fish and Wildlife Conservation Offices, and National Wildlife Refuges) to promote fishing and other aquatic recreational activities.
- Work with federal, tribal, state, outdoor industry, friends groups, and non-governmental organizations to support fishing and other aquatic recreational activities on other state and federal lands.
- Collaborate with the Sport Fishing and Boating Partnership Council, the Recreational Boating and Fishing Foundation, and other key partners and stakeholders to implement recreational fishing programs for the public, especially youth.

Goal 6: Increase Staffing Levels, Technical Capabilities, and Natural and Physical Assets to Fully Meet Our Mission

Conservation Challenge

The strength of the Service's FAC program lies in its national network of world-class facilities and employees focused on working collaboratively with our partners to conserve aquatic species and their habitats. While the Service has had a significant national presence in managing the aquatic resources of the United States for over 140 years, its mission has evolved to address emerging conservation needs of the nation. Today, that mission includes increased focus on the recovery and restoration of endangered, threatened and imperiled native aquatic species; fulfilling tribal trust and federal mitigation responsibilities; habitat restoration; prevention and control of invasive species; and research and monitoring of aquatic animal health.



Ryan Haggerty/USFWS

Service geneticist analyzing laboratory data.

As a result, the overall portfolio of activities and assets of today's FAC program is much broader and more complex. The availability of resources to support this increased volume and complexity of work, however, has not kept pace with demands. The lack of adequate resources has contributed to the deterioration of mission-critical assets and a growing backlog of maintenance and infrastructure needs. As more resources are diverted to address or repair deteriorated infrastructure, often under emergency situations, core conservation activities suffer and our mission is compromised.

In addition, the American landscape has changed drastically over the past several decades. Water has, in many locations, become a scarce commodity. The Service is now faced with the challenge of proactively identifying and acquiring water assets to ensure the stability of the program's aquatic species propagation and health facilities. The Service's NFHS facilities, in particular, are directly dependent on reliable sources of high-quality water to meet their responsibilities.

FAC program staff face challenges as well. The program's ability to meet its mission hinges directly on the abilities of and resources provided to our biologists, technicians, managers, and maintenance and administrative professionals, more than 700 in total. However, reductions in fiscal resources has meant that the program cannot fill critical staff vacancies at the field, regional, and national levels, despite increasing work volume and complexity, and has had to rely instead increasingly on temporary hires and volunteers. In the near term this compromises the program's ability to operate facilities, conduct field and laboratory activities, and build and support critical partnerships. Over time this attrition in workforce also jeopardizes our ability to maintain expertise and develop a workforce plan which cultivates management capacity from within our own ranks through career development.

Goal 6: Increase Staffing Levels, Technical Capabilities, and Natural and Physical Assets to Fully Meet Our Mission

Objective 1: Cultivate and enhance an effective and diverse workforce to meet current and future challenges in fish and aquatic resource conservation.

- Identify core capacities for each FAC field station and establish both a staffing and training plan to enable our employees to meet the program's diverse and expanding scientific, technological, and leadership needs.
- Establish and maintain a balanced ratio of staffing to operating expenses to assure predictable levels of funding that meet staffing, operational, and asset management needs over time.
- Develop a targeted recruitment strategy to reach out to talented applicants from all segments of the population.

Objective 2: Maintain and enhance safe and adequate water supplies, infrastructure, and other assets.

- Identify water resources critical to the function of FAC stations, evaluate current sources and threats, and secure safe and adequate water supplies.
- Maintain physical assets and equipment throughout the FAC program at an acceptable condition level measured by Facility Condition Index.¹⁵
- Address new technological needs of physical infrastructure to respond to changing environmental and program needs in light of increased energy needs and costs, competing uses of water, and impacts of climate change.

Objective 3: Enhance scientific capacity and technological tools necessary for conservation and management.

- Identify and assess existing FAC scientific and technical capacities relative to meeting current and future challenges in aquatic resource conservation.
- Increase scientific collaboration with partners and expand educational opportunities through training and certification programs.
- Working with partners, identify essential research needs and continue to refine scientific and technological information and tools critical to aquatic conservation.
- Secure the resources necessary to enable Fish Technology Centers, Fish Health Centers, the Aquatic Animal Drug Approval Partnership, National Fish Hatcheries, and Fish and Wildlife Conservation Offices to fully address new and emerging scientific and technical challenges of the Service and our partners.

¹⁵ The Facility Condition Index is determined by dividing the deferred maintenance backlog by the current replacement value of the asset.

Goal 7: Educate and Engage the Public and our Partners to Advance our Conservation Mission

Conservation Challenge



USFWS

USFWS staff help students explore the pond area and look for macroinvertebrates during Outdoor Skills Day at Entiat National Fish Hatchery (WA).

stewardship of our rivers, lakes, and oceans. Children in the United States are becoming increasingly disconnected from the natural world, spending greater amounts of time indoors, and involved with sedentary activities. They need to have opportunities and be encouraged to get outside and explore, learn about, and develop an appreciation for the value of our aquatic resources.

The national facilities-based infrastructure of FAC provides many opportunities to engage the public in our work to conserve, restore, and enhance fish and other aquatic resources for the continuing benefit of the American people. Through these facilities, FAC has long been engaged in community level, recreation-oriented activities for the public that provide access to fun outdoor experiences, teach basic fishing and other outdoor recreational skills, provide hands-on learning experiences, and foster an early appreciation for nature. Working with highly dedicated volunteers, the Service has also helped launch a nationwide network of Fisheries Friends Groups at individual national fish hatcheries and other FAC facilities, with the support and encouragement of the National Fish Hatchery System Volunteer Act of 2006.

Our work to educate and engage the public in advancing our conservation mission, however, goes well beyond the resources of any one agency or organization. Communicating the value of the FAC program's work in the context of this strategic plan is a crucial first step to maintaining trust and establishing and building support for our conservation initiatives among our partners, including the Sport Fishing and Boating Partnership Council, the Recreational Boating and Fishing Foundation, Fisheries Friends Groups, as well as with other federal agencies and state and Tribal governments. But this plan also provides a unique opportunity to do much more. Working together, we can use the Plan to identify common objectives across agency and organizational missions and then enlist our unique perspective, tools and resources to realize our shared conservation vision for the future.

As reflected throughout this strategic plan, the Nation's aquatic resources are in serious trouble and need our help. FAC, in collaboration with our partners and the public, can make a difference in addressing these challenges and advancing our conservation mission. By taking steps to educate the public on the nation's rich and diverse aquatic resources, their cultural, economic and recreational benefits, and today's conservation challenges, we can inform and build broad-based support for the efforts that we, and our partners, are undertaking to conserve these resources for current and future generations.

A key educational component of a successful and forward-looking national aquatic conservation strategy must include the engagement of America's youth in the enjoyment, understanding, and

Goal 7: Educate and Engage the Public and our Partners to Advance our Conservation Mission

Objective 1: Use communication tools to engage and educate the public in the Service's conservation mission.

- Use traditional, web-based, and social marketing tools to promote opportunities for, and communicate access to, fishing and other aquatic recreational activities.
- Work with program partners, such as the Recreational Boating and Fishing Foundation, to promote outdoor recreational activities and develop and distribute conservation education materials.
- Conduct targeted communication campaigns (e.g. Stop Aquatic Hitchhikers and Habitattitude) to educate and mobilize the public in support of program priorities.

Objective 2: Conduct hands-on community-based recreation and education programs to engage the public in outdoor recreational activities and the Service's conservation mission.

- Develop and carry out recreation and education programs on FAC and other Service facilities (e.g. the National Fish Hatchery System, Fish and Wildlife Conservation Offices, and National Wildlife Refuge System).
- Work with, support, and provide training for Fisheries Friends Groups to facilitate their volunteer efforts to build public awareness and support for FAC facilities and conservation programs.
- Collaborate with other program partners, including the Sport Fishing and Boating Partnership Council and the Recreational Boating and Fishing Foundation, to support community-based recreation and education programs.

Objective 3: In partnership with other federal agencies, states, tribes, and the private sector, develop and implement a comprehensive and unified national public outreach and education strategy.

- Work with federal, tribal, state, local governmental, and outdoor industry and non-profit organizations to educate the public on the value of and need to conserve America's aquatic resources.
- Collaborate with tribes, states and other key partners and stakeholders, such as the Aquatic Resources Education Association, to engage youth and realize a shared conservation vision for the future.

VI. Conclusions and Next Steps

This *Strategic Plan for the U.S. Fish and Wildlife Service Fish and Aquatic Conservation Program: FY 2016-2020* provides a framework for guiding the FAC program over the next five years. The purpose of the Plan is to serve as a foundational tool for making well-informed decisions and implementing effective conservation actions in a strategic and holistic manner. In the near-term, it will help us focus our limited resources and capacity on the highest priorities of the Service and our partners. However, we also view the Plan as a living document, which should continue to incorporate new information in meeting both current and emerging conservation challenges.

Beginning in FY 2016, the Plan will serve as the foundation for the development and implementation of annual operational plans by the FAC program at the national and regional levels; and will be used to inform the development of annual and out-year budget initiatives and other proposals. It will also serve as a starting point for developing national-scale workforce management and capacity strategies to align staffing and assets to deliver and achieve the Service's aquatic conservation mission. This includes the development of workforce training, business practices and policies, decision support and priority-setting tools, as well as the establishment of relevant performance metrics.

Ultimately, however, the success of the Plan lies in the ability of the FAC program to work collaboratively with other federal agencies, tribes, states, landowners, partners and stakeholders to realize the Plan's ambitious goals and achieve our shared vision for the future. We look forward to continuing to help lead the effort to promote conservation and stewardship of America's aquatic resources for the benefit of future generations.



Partners working together for conservation.

Brett Billings/USFWS



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