



Parker River NWR

Visitor Services Action Plan

2025 - 2030

TABLE OF CONTENTS

Page	Section Title
1	Purpose and Scope
2	Refuge Snapshot and History of the Visitor Services Program
3	Community Engagement and Conservation
5	Vision and Guiding Principles of the Visitor Services Program
7	Desired Outcomes and Actions by Guiding Principle
13	Interpretive Matrix
19	Partners and Resources
22	Logic Model: Steps for Success
23	Appendix A - Glossary
24	Appendix B - Supporting Materials from the Action Planning Process
24	Community Assessment Tools and Resources
25	Pre-work Questions
31	Appendix C - Discontinued Programming
32	Appendix D - Aspirational Actions

Purpose and Scope

As the world evolves around us, so does the way we meet those changing demands. This 5-year Visitor Services Action Plan (VSAP) meets the need for a more streamlined and focused method of strategic planning, allowing you to craft a vision and a set of principles that guide programming and desired outcomes with your audience. Every refuge's methods of engaging visitors in conservation, both on and off refuge lands, are unique.

Our agency strives for expanded positive conservation impacts for all, based on the U.S. Fish and Wildlife Service's (FWS) Standards of Excellence model for improving repeated visitor and community engagement to strengthen local conservation outcomes. Together, these guide the formation of dynamic, adaptable programming. Implementing this plan with the involvement of staff, volunteers, Friends, and community partners (refer to the full list of partners in the *Partners and Resources* section) will result in a larger collective benefit to wildlife conservation and public stewardship. The following document is a reflection of those strategic planning efforts for Parker River National Wildlife Refuge (NWR, refuge).



Photo: The full moon illuminates the Dune Trail for hikers joining the Moonlight Hike with Parker River NWR staff. Credit: USFWS.

Refuge Snapshot and History of the Visitor Services Program

Located along the northeastern coast of Massachusetts in an area of dense and expanding human development, Parker River NWR has special significance and value to migratory birds, other wildlife, and people. The refuge was established in 1941, and today consists of 4,727 acres within the towns of Newbury, Newburyport, Rowley, and Ipswich in Essex County. The refuge also occupies the southern three-fourths of Plum Island, a 9-mile-long barrier island, and hosts salt marshes, maritime dunes, maritime shrubland and forest, interdunal swales, sandplain grasslands, pitch pine woodlands, tidal estuary, beaches, rocky shores, and mudflats. These habitats support varied and abundant populations of resident and migratory wildlife including more than 300 species of birds and additional species of mammals, reptiles, amphibians, insects, and plants. The refuge also provides critical habitat for the federally-threatened piping plover.

The refuge headquarters and visitor center are located on the mainland in Newburyport, a city with a population of approximately 18,300 people. Located between the Merrimack River watershed to the north and the Ipswich River watershed to the south, Parker River NWR is situated within the 25,500-acre Great Marsh, a state-designated Area of Critical Environmental Concern and a Western Hemisphere Shorebird Reserve Network Regional site. Parker River NWR lies within the Gulf of Maine watershed, which extends from Nova Scotia and New Brunswick, Canada to Cape Cod, Massachusetts. One of the most biologically productive marine ecosystems, the Gulf of Maine's waters and shoreline habitats host some 2,000 species of plants and animals. Ocean currents control temperatures and bring nutrients and food to the plants and animals that occupy the rich undersea terrain.

Parker River NWR has long supported a robust Visitor Services Program, including the longest running mentored youth waterfowl hunting program in the nation. The recreational fee program in large part contributes to the refuge's long-standing ability to provide wide-ranging opportunities and support seasonal staff and interns. Opportunities have been provided for all age ranges, from early elementary and summer day camp programming to adult naturalist programs to mentored outdoor opportunities to walking and bus tours. High-quality opportunities for nature-based recreation abound, including walking & biking, wildlife observation & photography, hunting, fishing, paddling, beach use, and annual special events with visitation surpassing 315,000 each year, particularly between April and October. Refuge staff prioritize making programs universally accessible to visitors of all abilities.

The refuge also maintains a nascent Partnership with the City of Lawrence, Massachusetts, including supporting in- and out-of-school environmental education and community activity days. Additionally, refuge supported a recent National Fish and Wildlife Foundation grant focused on establishing a new trail, vegetation management, and interpretive signage with community partners.



Photo: (left) A close-up of yellow flowers and (right) beach plums grow blue and purple fruits at Parker River NWR staff. Credit: USFWS.

Community Engagement and Conservation

The four towns surrounding and within the refuge lands are brimming with a wide variety of passionate and dedicated volunteers, Friends groups, routine visitors, over 30 partner organizations, and FWS staff as community ambassadors to local schools, homeschool groups, youth services, youth organizations and more. There is collaborative participation in local community events, workshops, working groups and beyond to support intern development, work on conservation and outreach projects across boundaries, and serve as a living classroom. With partners, we strive for novel, gateway opportunities to begin or deepen connections to nature.

View the map of community amenities and services through ArcGIS, <https://fws.maps.arcgis.com/home/item.html?id=01a5687d516c4c93aa339f8fc7ad8527>



Figure 1: This map shows the refuge (green) located south and east of their gateway community audiences in the communities of Newburyport and Newbury, MA.

Community Barriers and Visitor Services Challenges

The following is a compilation of identified barriers to community engagement and challenges faced by the Visitor Services program. The framework of this plan aligns the proposed actions with the vision, guiding principles, and desired outcomes, striving to reduce and overcome these barriers and challenges.

- Staffing, staff retention, and career pathways and ladder opportunities for staff and interns.
- The ongoing effects of sea level rise, storm surge, and coastal flooding, has current and near-future impacts on access to public use areas.
- High volume of recurring and long-time visitors who may be apprehensive about change.
- Lower engagement of youth, teens, young families compared to other demographics.

Socioeconomic Data (2023)		
Census category	Newbury	Newburyport
Total population	6,695	18,282
Number of households	2,501	7,537
Median household income	\$167,625	\$115,807
Median rent	\$2,092	\$1,426
Median age	50 years	46 years
People 65 years and older	1,593	3,794
High school graduate	98%	97%
Bachelor's degree or higher	56%	94%
Labor force (16 and above)	4,693	9,230
Mean travel time to work	26 minutes	29 minutes
Poverty	6%	5.7%
Persons with disabilities	2.2%	9%
Language (other than English)	4.9%	5.3%

Table 1 (above) includes socioeconomic data for Newbury and Newburyport, MA based on the 2020 U.S. Census.

Demographic Data (2023)		
Demographic category	Newbury	Newburyport
White	93%	93.7%
Black or African American	0	0.6%
Native American or Alaska Native	0	0
Asian	0.8%	1.5%
Native Hawaiian and Pacific Islanders	0	0
Two or More Races	3%	4%
Hispanic or Latino	2%	2.8%

Table 2 (above) includes demographic information for Newbury and Newburyport, MA based on the 2020 U.S. Census.

Vision of the Visitor Services Program

Parker River National Wildlife Refuge will provide welcoming and accessible spaces for communities and visitors to engage and connect with wild places.

We will inspire visitors to discover and appreciate the refuge's unique and resilient habitats which benefit both wildlife and people. Alongside partners, we will empower visitors and neighboring communities to champion sustainable stewardship within and beyond refuge boundaries.

Guiding Principles

Guiding Principles are specific, actionable words that capture the essence of a vision statement and are a literal guide, acting as the pillars of a visitor services program. For the purposes of this plan, refuge staff have come up with a definition for each guiding principle that is specific to their visitor services program. In the following pages are the desired outcomes and actions for the refuge's visitor services program nested beneath each guiding principle. Together, these principles and desired outcomes act as an outline to help the FWS site make decisions and organize tasks according to the priorities established in the vision statement. Parker River NWR have determined the following guiding principles:

Inspire

To ignite passion, appreciate the value of natural resources, and create admiration for resilience. Visitors can be inspired by interactive opportunities for discovery and engagement. This innovative aspect of the Visitor Services program requires creative problem solving. Inspiring visitors creates understanding about conservation and sparks excitement about the natural world.

Collaborate

Increase teamwork among the refuge staff, but also with interns, volunteers, and partners. By collaborating with current and new partners, the magnitude of voices and ideas increases which is important for innovation, challenging assumptions, and leveraging different strengths and weaknesses internally and externally.

Collaborating also means coming together over shared goals which enhances the resiliency and continuity of projects to provide a "project safety net" and avoids duplicating effects. This can be done by moving away from the top-down approach and instead considering where the community has identified needs and interests. Increased buy-in – asking someone to commit and contribute to ideas and projects – also aids in coming together over shared goals.

Ultimately, we can accomplish more together than we can alone. Together we can address the impossible, increase effectiveness, and send clear messaging.

Connect

Form deeper, long-term relationships that are reciprocal. Connection builds appreciation which then fosters support and stewardship. Once you connect with something meaningfully, you can identify with it. That then becomes important and relevant to you, and you can become an advocate for it. Everything is connected.

Description of Priority Levels for Actions and Budget-dependency

Actions corresponding with the following levels will be accomplished when budget dictates and the refuge has a:

- Level 1: Full staff (Visitor Services Manager/Lead, Visitor Services Specialist, Park Ranger, Seasonal Fee Collector).
- Level 2: Reduced staff (Visitor Services Manager/Lead, Visitor Services Specialist OR Park Ranger, Seasonal Fee Collector).
- Level 3: Minimal staff (Visitor Services Manager/Lead with no additional full-time, permanent staff).

It is important to note that although the following action items are categorized as Levels 2 and 3, that they cannot be accomplished if outside resources do not become available. Without outside resources or meeting the criteria needed for staffing Levels 2 and 3, they cannot be completed within the five-year timeframe of this plan.

To ignite passion, appreciate the value of natural resources, and create admiration for resilience. Visitors can be inspired by interactive opportunities for discovery and engagement. This innovative aspect of the Visitor Services Program requires creative problem solving. Inspiring visitors creates understanding about conservation and sparks excitement about the natural world.

Desired Outcome: People know and care about who we are, what we do, and why we do it so much so that they act to support the refuge and conservation through stewardship.

Level 1:

- **Action:** In five years, the Friends group will become the conduit between the refuge and larger Newburyport community by recruiting various users to participate in three community outreach events both on (e.g. staffing the visitor contact station (VCS) at least once a week in the peak season), and outside the refuge boundaries (e.g. attending community events such as Yankee Homecoming) to share Friends activities with the broader community and enhance opportunities for fundraising and collaboration.
- **Action:** Within three years, work with the Friends group to sign up for the Friends Mentor Program and/or attend Friends Academy to ensure Friends can independently spearhead programs and projects with minimal refuge oversight and showcase their achievements beyond direct membership and connect with the Newburyport and Newbury communities.
- **Action:** By 2025, institutionalize ongoing efforts to improve the gatehouse staff recruitment process; making an effort to understand the interviewee's career goals and interests. Update interview questions while prioritizing applicants who have a passion for nature, recreation, and visitor services. After onboarding, organize separate, informational interviews or job shadowing opportunities with the new gatehouse staff and all team members to help facilitate connections between staff to demonstrate that these internships are stepping stones to a career with FWS.



Photo: A large group of bicyclists of all ages join refuge staff and local partners on a Moonlight Bike Ride at Parker River NWR. Credit: USFWS.

Level 2:

- *Action:* Within two years, the visitor services lead will facilitate connections between the Friends of Parker River NWR and other successful Friends groups and resources nationally by setting up annual meetings or encouraging the Friends to explore opportunities for fundraising strategies to assist with growth and development.
- *Action:* Within two years, the visitor services lead will collaborate with Friends of Parker River NWR to identify potential funding and grant opportunities within the greater community to support key refuge priorities and projects.

Desired Outcome: Promote positive visitor experiences through clear expectations and messaging.

Level 1:

- *Action:* Within one year, the visitor services lead will work to improve gatehouse staff retention by providing early-season training which communicates expectations and information about why gatehouse positions are so important. Further improve the gatehouse staff experience by making sure they feel like part of the refuge team and have monthly opportunities for professional development in visitor services and biology.

Desired Outcome: The refuge is seen as a place-based community resource to foster collaboration and relationships.

Level 1:

- *Action:* Within three years, increase opportunities for volunteers, staff, interns, and Friends to develop and lead programs confidently and independently through formal trainings to develop skills based on training received from the Friends Mentor Program and/or Friends Academy.

Level 2:

- *Action:* Within two years, increase opportunities for volunteers, staff, interns, and Friends to socialize and learn together by building support networks and community. Some examples of these gatherings could include professional development panels, lunch and learns, volunteer appreciation day each year, organizing volunteer coffee hours and social events per season, or providing volunteers with specific programming.

Increase teamwork among the refuge staff, but also with interns, volunteers, and partners. By collaborating with current and new partners, the magnitude of voices and ideas increases, which is important for innovation, challenging assumptions, and leveraging different strengths and weaknesses internally and externally. Collaborating also means coming together over shared goals which enhances the resiliency and continuity of projects to provide a “project safety net” and avoids duplicating effects. This can be done by moving away from the top-down approach and instead considering where the community has identified needs and interests. Increased buy-in, asking someone to commit and contribute to ideas and projects, also aids in coming together over shared goals. Ultimately, we can accomplish more together than we can alone. Together we can address the impossible, increase effectiveness, and send clear messaging.

Desired Outcome: People know and care about who we are, what we do, and why we do it so much so that they act to support the refuge and conservation through stewardship.

Level 1:

- Action: Within three years, expand volunteer capacity by offering at least one specialized training annually to empower volunteers to independently lead programs and projects based on their interests. This may include birding, photography, walking tours, kayaking, art, etc.
- Action: Within two years, visitor services staff will develop a survey to gauge new and existing volunteer interests to identify and streamline training program development, prioritizing topics with multiple interests.
- Action: By 2026, the visitor services and biology teams will provide at least one volunteer training to recruit “community captains” and expand opportunities to lead at least one community-based opportunity related to citizen science projects and/or stewardship projects both on and off the refuge (e.g. pepperweed pulling, shoreline cleanup, invasive monitoring and mapping), with a focus on enhancing neighbor-to-neighbor outreach and engagement.



Photo: (left) An intern releases a Monarch butterfly recently tagged to help track its long migration patterns. (Right) A volunteer and refuge staff greet and welcome visitors to the Visitor Center. Credit: USFWS.

- **Action:** Over the next five years or as opportunities arise, the visitor services team will continue to welcome collaboration with partner organizations, volunteers, local college students, and educators to expand offerings beyond hunting, fishing, wildlife observation, wildlife photography, environmental education, and environmental interpretation that attract new audiences. For example, continuing and expanding night sky programs, women's outdoor skills programs, and art programs, and developing new offerings such as camping programs, foraging programs, fly tying, etc.

Desired Outcome: Expand welcoming, repeat experiences with nature in outdoor recreation programming.

Level 1:

- **Action:** Over the next five years, refuge staff will work to build long-term relationships with local public schools within the Merrimack River watershed such as Haverhill, Salisbury, and Amesbury, focusing on getting repeat visits from fourth grade classes to the refuge through consistent scheduling, outreach, and pre-planned field trips to which all staff contribute.
- **Action:** Over the next three years, refuge staff will work with Friends and volunteers to onboard five volunteer interpreters over the next three years that reflect all community members, with a focus on making programs and field trips more widely available.
- **Action:** Within two years, refuge staff will work with Friends and other partners like Mass Wildlife & Essex County League of Sportsmen to expand introduction to hunting opportunities to non-hunting families. If possible, refuge staff will work with partners to provide necessary equipment to improve access to hunting and offer family hunts catered to non-hunting families.

Level 2:

- **Action:** Building on the previous action, within three years, work with Friends to respond to community-identified constraints such as providing transportation and fee waivers.

Desired Outcome: The refuge is seen as a place-based community resource to foster collaboration and relationships.

Level 3:

- **Action:** Within three years, refuge staff will work with Friends and partners to advertise the use of auditorium/classroom to community education groups with the goal of increasing the use of the auditorium or classroom by 15% annually.
- **Action:** Within one year, the Refuge Media Lead will create a fourth-grade landing page on the refuge website where educators can understand how to get student passes and self-guided materials.

Form deeper, long-term relationships that are reciprocal. Connection builds appreciation which then fosters support and stewardship. Once you connect with something meaningfully, you can identify with it. That then becomes important and relevant to you, and you can become an advocate for it. Everything is connected.

Desired Outcome: People know and care about who we are, what we do, and why we do it so much so that they act to support the refuge and conservation through stewardship.

Level 1:

- Action: Within five years, the Visitor Services Lead will work with the Friends and community partners to reconfigure the VCS in a manner that is more engaging and provides clear opportunities for visitors to engage with programs, volunteer opportunities, and partnership activities. This may include updated displays and activities, improving relevant handouts, installing a seasonal shade over the deck, and developing educational murals or displays near the hallway connecting the public restrooms.
- Action: Within three years, schedule consistent volunteer/intern presence for VCS outreach staffing (at least Friday – Saturday) during peak season, with a focus on key outreach messages and calls to action (e.g. beach closures, dog leashing, walk around the flock campaign, invasive vegetation removal workdays, etc.).

Level 2:

- Action: Within three years, program leads will ensure respectful outreach methods are integrated into all trainings for Friends, volunteers, interns, and staff to expand respectful engagement to our wider communities.

Desired Outcome: Expand welcoming, repeat experiences with nature in outdoor recreation programming.

Level 1:

- Action: Within one year, the Visitor Services Lead will select a point person to manage website and social media tasks. Their responsibilities over the next four years will include providing training to other staff members on updating the website to better communicate refuge closures, establishing a schedule to consistently post on Facebook and other social media outlets.



Photo: (left) A student examines and measures a small fish during a field trip. (Right) A small group of people spread out on the beach to dig for clams. Credit: USFWS.

- Action: Within two years, the person selected for the previous action will create a user-friendly, Section 508-compliant interactive refuge map for the website.
- Action: Within five years, work with local transportation organizations (e.g. Newburyport Livable Streets, Merrimack Valley Transit Authority, Newburyport Resiliency Committee) and community members to identify opportunities to enhance car-free access to the refuge and proximate green spaces based on needs which are shared by the community.

Level 2:

- Action: Within one year, develop at least one sensory-friendly and/or tactile nature-based discovery item that families, schools, and partner organizations can “check out” to expand engagement to visitors.

Desired Outcome: Promote positive visitor experiences through clear expectations and messaging.

Level 2:

- Action: Within five years, refuge staff will work with the community and partners such as Mass DCR and Virginia Tech to develop simple, large, consistent, and positive signs that are universally understandable using pictographs and QR codes for different languages and place them in the most effective locations.
- Action: Within three years, the Visitor Services Lead will work to improve refuge communication with visitors, including but not limited to the investigation of smart signs to communicate any refuge closures due to capacity, developing simple tear sheets to orient visitors quickly to refuge experiences and views, or updating refuge maps with key infrastructure, hikes, and viewing areas.

Level 3:

- Action: Within one year, the Visitor Services Lead will lead the effort to obtain bids for Parker River NWR Entryway Redesign to address traffic flow patterns, rebuild the gatehouse, install new entryway gates, and ensure that new infrastructure is resilient to sea level rise.
- Action: Within five years, the Visitor Services Manager will work with interns to evaluate the effectiveness of both interpretive and way finding signs throughout the refuge and beyond by completing an inventory and assessment.

Desired Outcome: The refuge is seen as a place-based community resource to foster collaboration and relationships.

Level 1:

- Action: Over the next five years, refuge staff will work with community partners and Friends to eliminate existing tall, wordy displays and create a more opening and welcoming visitor's center that features engaging and interactive displays. With partners, refuge staff will identify opportunities to co-create exhibits and resources.
- Action: Over the next two years, increase community engagement by Visitor Services, Refuge Management, and Biology leads by attending local community meetings to understand what's important to them, starting with Newburyport Youth Services, YWCA, Newbury Municipal council on disabilities, Boys and Girls Club of Lower Merrimack Valley, etc.

Interpretive Matrix

An essential element of any site is the ability to promote storytelling with the public in ways that are meaningful, relevant, and compelling. In this exercise, staff, partners, Friends, and volunteers identified the topics that make Parker River NWR special and crafted elements to elevate their story through development of the Interpretive Matrix. A well-considered Interpretive Matrix can be a communication strategy emphasizing the rationale and validity of the interconnected biological and visitor services goals in relation to the cultural and natural history of the site while keeping messaging relevant to external audiences. The resulting applications are endless in interpretive and environmental education programming, exhibits, signage, use with contractors in meaningful design, use in planning, orienting new Friends, volunteers and staff members, and beyond. On a daily level, the Interpretive Matrix serves managers and Visitor Services staff as a guide in decision making, allocating resources for community engagement, development of memorable environmental education and interpretive programming, orienting partners and community volunteers, emphasizing focuses for contractors on exhibits or signage, to leverage capacity, and more.

On the following pages, you will see that each matrix contains several components, including interpretive themes, supporting concepts and ideas, tangibles, intangibles, and universal concepts. The National Park Service, which is also part of the Department of the Interior, states that interpretive themes “encourage exploration... [They] go beyond a mere description... to foster multiple opportunities to experience and consider the [FWS unit] and its resources. These themes help explain why a [FWS unit] story is relevant to people.” Through these efforts, the FWS applies these same principles to national wildlife refuges to improve the quality of Visitor Services within each FWS site to influence public perception and increase support while sharing that these FWS sites are where both wildlife and people may thrive.

Please reference the following pages for the resulting topics and themes:

Topic: Healthy Barrier Island Systems

Biological Priority: Conserving systems - looking beyond a single species; Adaptation to change;

Theme Statement:

The intact barrier island system found at Parker River NWR is uncommon in the northeast. This barrier island system not only enhances the survival of wildlife and adjacent human communities, but it also offers an uncommon wealth of experiences for visitors to explore nature.

Tangibles	Intangibles	Universal Concepts	Audiences
<ul style="list-style-type: none">PepperweedSalt marshHidden wildlife (Middens and voles)SanderlingSandBogs/cranberriesStage Island overlook and visualizationHorseshoe and fiddler crabsPools, flats, tide	<ul style="list-style-type: none">TimeSlow changePersonal impacts of stewardshipHabitat health impacts of stewardshipReciprocity	<ul style="list-style-type: none">HomeResilienceChangeLegacyGratefulness	<ul style="list-style-type: none">Elementary and high schoolsCollege classroomsFrequent flyers who come for a reason but miss the systemSingle-type user groupsBeach goers

Table 3: Interpretive Matrix topic, Healthy Barrier Island Systems, specific to the site.

Supporting Ideas and Concepts:

- The refuge is part of the longest, undeveloped barrier island in the region. All parts of the system rely on one another to thrive from well preserved dunes to salt marsh.
- Parker River NWR contains intact habitats that have diminished elsewhere, and we must preserve them for wildlife. It's a "cause and effect" story - the lack of development and ecologically harmful uses on the refuge portion of Plum Island are why the refuge system continues to thrive where similar systems have been fragmented.
- There is rich social, cultural, and environmental history here. We need to recognize and communicate that it's an intact system within a community shaped by human development from Indigenous presence until today.
- More than just a beach; more than just birdwatching. Many users come with a singular focus and don't experience the diversity of habitats and opportunities. Facilitating ways to expand exploration and interconnectivity between habitats may engender greater care for the landscape (e.g., there is no beach without the salt marsh).
- Tangible resources are excellent tools to spark curiosity and capture people's imaginations, whether focused on wildlife or not (e.g. Sand kits; What's under our feet; What came before us; Sanderlings dodging waves; Roll of tide, sand, wrack; Consider dynamic nature of healthy beach).
- The refuge offers many environmental education opportunities that are the vehicle for communicating systems messaging. Classrooms often can't get this experience anywhere else.

Topic: Nature Is Resilient - If We Let It Be	Biological Priority: Nature-based techniques improve restoration success; Protecting and restoring self-sustaining systems;		
Theme Statement: Parker River NWR is one of many coastal conservation areas. This network of protected habitats and ecosystems is made more resilient by small and large acts of conservation-based projects with partners and caring citizens.			
Tangibles <ul style="list-style-type: none"> • Invasive plant species (e.g. pepperweed) • Marsh restoration techniques • Salt marsh • Chronologs 	Intangibles <ul style="list-style-type: none"> • Reciprocity • Innovation • Resiliency • Call to action • Gateways / Stepping stones • Nature taking its course 	Universal Concepts <ul style="list-style-type: none"> • Hope • Gratitude • Trauma • Sense of time 	Audiences <ul style="list-style-type: none"> • Volunteers • Interns • Youth aged 16-35 • School groups

Table 4: Interpretive Matrix topic, Nature Is Resilient - If We Let It Be, specific to the site.

Supporting Ideas and Concepts:

- Visitors come to the refuge to enjoy wildlife and scenery. The same wildlife and landscapes need our help to thrive.
- Healthy and contiguous habitats are the best way to protect everything from wildlife to landscapes to roads. We have to protect nature to be protected in return.
- If we can learn to be grateful for all the free and amazing benefits of nature, can we change the way we treat the earth? Can we learn to be grateful simply that a place like this still exists and respect how fragile that existence is if we don't care for it?
- The refuge, and particularly the Great Marsh, help maintain resiliency against elements like storm surge and the use of science to identify solutions for local community challenges.
- Oftentimes, letting nature take its course is the best and most efficient way to restore and preserve habitats. Sometimes nature needs our help facilitating these processes - there is a difference between not intervening versus working with nature.
- Working with nature and respecting natural processes helps make nature more resilient.
- Beach closures really work for wildlife. Pulling pepperweed really works for wildlife. Ditch remediation really works for wildlife. We need to provide visitors, interns, volunteers, and partners ways to feel like they can make a meaningful difference to combat hopelessness and increase buy in.
- Limited staff can't do it all. Conservation work, especially in regard to the Great Marsh, requires partnerships outside our boundaries.
- In our fragmented landscape, it's more important than ever to focus on connecting open spaces and developing conservation corridors by working with partners and community.

Topic: Accessible - Everyone's Refuge	Biological Priority: Create better understanding for connections/deepening relationships between communities and conservation.		
Theme Statement: Parker River NWR provides “nearby nature” to local community members and is a world class destination for visitors further afield. All visitors are welcome to enjoy the refuge at their own pace. However, managing access to meaningful visitor experiences and quality habitat conservation through high visitation can be a challenging balance.			
Tangibles <ul style="list-style-type: none"> Refuge road Hellcat Trail Beach Wildlife Digital resources Program resources Gatehouse staff Ease and proximity of access Special events 	Intangibles <ul style="list-style-type: none"> Quiet Convenience Welcoming 	Universal Concepts <ul style="list-style-type: none"> Sense of belonging Sense of place Beauty 	Audiences <ul style="list-style-type: none"> Mobility-impaired visitors School groups College students/classes Youth aged 16-35 Families with small children Local organizations like YWCA, Boys & Girls Club, etc.

Table 5: Interpretive Matrix topic, Accessible - Everyone's Refuge, specific to the site.

Supporting Ideas and Concepts:

- Entrance fee at the refuge is significantly lower than nearby recreation and conservation areas, making it comparatively more accessible than alternatives.
- Specific goal is not required to have a meaningful experience whether they're seeking a singular, deep experience or an assortment of nature-based recreation.
- There is something for everyone here (“the people’s buffet”) - from deep dives to wide variety, to special events (“Let’s Go Outside”/Refuge Week dike access/etc.)
- Trails offer nature for all - even the road provides high quality wildlife viewing and scenery for people who may not otherwise be able to get outdoors.
- Hunting, fishing, clamping, and more along an otherwise developed coastline.
- Provide opportunities for both passive access (self-paced) and guided programs.
- Refuge, and refuge road, is for all users: more than birdwatching; more than beach.
- Gatehouse staff are the first and sometimes only point of contact visitors have - they set the tone, the expectations, and the experience for visitors.

Topic: Conserving Habitat, Conserves Wildlife	Biological Priority: The mission of the FWS is working with others to conserve, protect, and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people.
--	--

Theme Statement:

The FWS manages an unparalleled network of public lands and waters across the country. Parker River NWR is one of over 560 refuges where we work with partners and communities to address conservation challenges. We seek solutions through nature to ensure a balanced conservation approach that enables wildlife and people to thrive now and into the future.

Tangibles	Intangibles	Universal Concepts	Audiences
<ul style="list-style-type: none"> • Light pollution/darkness • Habitats • Open beach • Wildlife • Barrier island • Comparison of development 	<ul style="list-style-type: none"> • Lack of development • Feeling grounded • Knowledge • Change in self-understanding and responsibility in relation to nature • Habitats and ecosystems 	<ul style="list-style-type: none"> • Hope • Escape • Respite • Balance • Serenity • Comfort • Reciprocity 	<ul style="list-style-type: none"> • New or uninitiated visitors • Beach goers/recreation-motivated visitors • Youth • Tourists • Locals already familiar with the refuge

Table 6: Interpretive Matrix topic, Why We're Here: Conserving Habitat, Conserves Wildlife, specific to the site.

Supporting Ideas and Concepts:

- Refuges are not parks - the mission focuses on conservation first and that has allowed these unique "unspoiled" habitats to exist within surrounding development.
- Benefits of preserving the system are interconnected for wildlife and for people. Telling the story helps visitors grasp the bigger picture even when the outcomes are unknown (e.g. black duck conservation resulted in benefits for plovers and salt marsh sparrows, what's next?).
- The refuge is not "untouched" or "natural" per se, but natural is relative and the refuge exemplifies how nature can take back developed areas and revert to healthy systems.
- The refuge is heavily managed to enhance habitat health. Management must work with nature and adapt to changing landscapes in an area already highly altered by human use.
- We should all care about preserving habitat and open space. It is everyone's responsibility to protect and it's a privilege to be on a wildlife refuge. We need to treat it with respect. The land takes care of us, and we need to care for it in return.
- Doing the right thing matters even when no one is looking or when the impact feels small. All of our actions are important.
- Balancing public use and conservation is hard when humans are visitors to the island, but wildlife calls it home. This is why some activities, points of access, or experiences may need to be adapted to promote the health and well-being of wildlife at their home habitat.
- Visitors are often confused about the "right" way to recreate at a refuge. Programming like the Behind the Scenes tours can successfully share messaging about the unique privilege.

Topic: Place-Based Community Resource	Biological Priority: Conservation requires working beyond refuge boundaries with partners; Developing traits, skills, and knowledge in future leaders.
--	---

Theme Statement:

Parker River NWR serves as a living classroom for community members, partners, and the next generation of conservation leaders. Bounded by the ocean and developed lands, the refuge affords access to abundant wildlife, unique habitats, and intact ecosystems on a scale not otherwise found in our area. The refuge provides examples of solutions through nature to enhance resiliency.

Tangibles	Intangibles	Universal Concepts	Audiences
<ul style="list-style-type: none"> • Salt marsh • Storm water • Property value • Transition between habitat areas/development versus non-development, etc. • Shellfish • Nursery fish 	<ul style="list-style-type: none"> • Local challenges like sea level rise • Leave no trace • Living classroom • Community building • Visitor to refuge ambassador • Access to ecosystem • Identity and belonging with peers 	<ul style="list-style-type: none"> • Escape • Rejuvenation • Knowledge • Empowerment to act 	<ul style="list-style-type: none"> • School groups • Younger audiences • Mobility-impaired

Table 7: Interpretive Matrix topic, Place-Based Community Resource, specific to the site.

Supporting Ideas and Concepts:

- Refuge offers an opportunity to educate people on the environment. Train the trainer programs, like the salt marsh restoration work, helps build capacity across partners.
- The refuge demonstrates how healthy habitats can adapt and accommodate to threats like sea level rise. It provides demonstration sites that show how we might rise to coastal challenges.
- This place protects coastal communities, and provides facilities, programs, and spaces for community members to learn, grow, and gather.
- We must be present within our community and responsive to their needs, concerns, and interests before we can reasonably expect them to trust and collaborate with us.
- Expanding beyond public uses to build relationships helps reach audiences and shares messaging in new ways (e.g. astronomy programs; moonlight bike ride; salt marsh art).
- Continuing the conservation legacy & training the next generation.
- Fish, hunt, bird, hike, learn. The refuge provides unique opportunities for nature-based recreation that may not be available or accessible within our communities.
- The refuge provides opportunities to recreate, and rejuvenate within a natural coastal setting.

Partners and Resources

Parker River NWR is part of a dedicated and active conservation community. The work outlined includes community partners at every level and the following organizations are critical to achieving lasting and measurable success in visitor services.

Partner Name	Description of partner and what they do
Amesbury Public Housing Authority	Staff and partners collaborate to provide family programs and offer assistance with pollinator garden support.
Appalachian Mountain Club	Non-profit agency and primary partner for the Bay Circuit Trail terminus establishment and ongoing expansion of trail access.
Artemis - New Hampshire Chapter	Initiative within the National Wildlife Federation to develop leadership and outdoor skills for women. Partner on programs for women outdoors including introductory outdoor skills, learn to paddle, and mentored water hunts in conjunction with Mass Wildlife.
Backcountry Hunters & Anglers	Non-profit organization that looks to preserve North America's outdoor heritage of hunting and fishing through public education and advocacy. Collaborate on introductory hunting and fishing initiatives at the refuge, including the youth waterfowl hunt, Veterans waterfowl hunt, "Learn to Clam" programs, and more.
City of Newburyport	Collaborate on project-specific goals (e.g. Federal Lands Access Program evaluation of turnpike resiliency). Support and/or provide perspectives on refuge projects and initiatives with high community impact or profile (e.g. Bay Circuit Trail terminus; Hellcat Trail establishment).
Essex County League of Sportsmen	Conservation-oriented umbrella organization that is made of a dozen individual fish, game and environmental protection clubs. Annually organize the youth mentored waterfowl hunt, as well as provide mentors for the women's waterfowl hunt.
Essex National Heritage	Non-profit commission that preserves and connects the cultural heritage of Essex County's cities and towns. Collaborate on major events, including Let's Go Outside (refuge-led) and Trails & Sails (Essex Heritage Led).
Friends of Parker River NWR	The refuge Friends group supports all aspects of visitor services and outreach, including providing programs, supporting maintenance projects, leading beach cleanups, fundraising, running an "artist of the month" program, and more.
Great Marsh Coalition	Community outreach and engagement related to the eight towns in the Great Marsh (Gloucester to Salisbury). Hosts Great Marsh Symposium, plan inter-organization outreach strategies, Sails and Trails mainly coordinates through this group.
Groundwork Lawrence	Non-profit organization focused on developing community-based partnerships which empower people, businesses, and organizations to promote well-being. Collaborate on the development of an interpretive trail and restoration efforts within Lawrence Heritage State Park.
Home school networks	Several regional homeschool networks exist. The refuge is expanding outreach to provide more environmental education programs to homeschool families. Historically this has largely been limited to cranberry bog programs.
Lawrence Community Boating	Local boat house focused on providing boating education and outdoor recreation opportunities for local youth and adults. Collaborate on free youth nature-based programs, including archery, learn to fish days, and environmental education.

Local artists such as Patty Evans, Jenn Houle, and more	The refuge collaborates with local artists, including existing volunteers, community members, and Friends group-featured “artists of the month,” to provide nature-based art programs.
Mass Wildlife	State agency responsible for the conservation of freshwater fish and wildlife in the Commonwealth. Partner on programs for women outdoors including introductory outdoor skills and mentored waterfowl hunts in conjunction with the NH Chapter of Artemis.
Newburyport Livable Streets	Committee of local community volunteers and city representatives that focus on enacting principles of complete streets in Newburyport. Partner with the refuge on alternative transportation public programs, such as Let's Go Outside and after-hours bike rides.
Newburyport Public Housing Authority	Staff and partners collaborate to provide family programs and offer assistance with pollinator garden support.
Newburyport Youth Services/Learning Enrichment Center	City-led organization providing family services, outreach, and recreational opportunities. Periodically collaborate on field trips and share refuge programs. Provides after school childcare for area schools. Run the Learning Enrichment Center targeting students in public housing to reduce drop out rate.
Newburyport Public Library	Public library for the City of Newburyport. Partner with the refuge on youth story time programs during the summer months into the fall, as well as special events.
North Shore Astronomy Club	Regional club of amateur astronomers. Volunteers work with the refuge to support “star parties” on the refuge in conjunction with refuge messaging about dark skies.
Plum Island Kayak	Local kayak outfitter that supports refuge-led kayak programming in the salt marsh and for special events (e.g. Let's Go Outside).
Plum Island Surfcasters	Local club of recreational anglers with a focus on the recruitment and training of a new generation. Lead and coordinate an annual youth fishing derby at the refuge, as well as provide volunteers for special events and learn to fish days coordinated by the refuge.
Public elementary schools	The region includes many public elementary school systems with varying degrees of student resources and access to green spaces. The refuge frequently collaborates with teachers on curriculum and refuge-based field trips as an outdoor classroom. The refuge has begun expanding outreach to schools to support field trips, with a focus on schools with limited resources.
Public high schools	Multiple local high schools and refuge staff participate in career fairs, open houses, and advertise internships and volunteer opportunities for students.
River Valley Charter School (RVCS)	Local elementary school - refuge frequently collaborates with classrooms on curriculum and refuge-based field trips. During the pandemic, RVCS hosted an outdoor classroom on the refuge.
Riverside Cycle	Local cycle shop in downtown Newburyport. Collaborate on special events and programs focused on alternative transportation.
Spencer-Peirce-Little Farm	Non-profit site within Historic New England that offers public programs focused on local history and agriculture. SPL Farm is less than a 10-minute walk from the refuge, and connected on the Bay Circuit Trail. Collaborate on trail improvements as well as promoting cross-visitation between sites.

Town of Newbury	Collaborate on project-specific goals (e.g. Federal Lands Access Program evaluation of turnpike resiliency). Support and/or provide perspectives on refuge projects and initiatives with high community impact or profile.
Yankee Clipper Harbor Tours	Local commercial riverboat operator that leads educational salt marsh tours on the refuge with support from trained volunteers.

Table 8: Partners and resources, including a description of who they are and what they do.

Logic Model: Steps for Success

The Visitor Services Logic Model (figure pictured on the right as a circular model and below as a linear model) was modified from the Interagency Visitor Use Management Council's Visitor Use Framework model and provides a strategic and thoughtful approach to developing Visitor Services programming. We can develop, implement, evaluate, and adapt activities that enhance the purpose of our refuge while meeting community needs and reaching intended audiences.



1 Informed Reflection	2 Visitor Services Conditions Assessment	3 Develop an Action Plan	4 Inform, Monitor, Evaluate, and Adjust
<p>Steps:</p> <ul style="list-style-type: none">Clarify programming, purpose and need, and consider whether the activity contributes to the vision for your Visitor Services program.Review the site's purpose, applicable legislation, agency policies and priorities, and other management direction.Define the geographical scope, conduct a community analysis for needs and determine actual and perceived barriers.Research related opportunities offered by others (consider partner opportunities). <p>Result: Determine whether the proposed Visitor Services activity will further the priorities of the site and the vision of your Visitor Services program, and reflect upon how this activity will benefit the community and audience(s).</p>	<p>Steps:</p> <ul style="list-style-type: none">With audience(s) in mind, list the resources (personnel, infrastructure, equipment, etc.) that are currently available to assist in providing this Visitor Services program to the public.List the necessary resources that are not currently available or deficient.Assess whether the current resources will allow universal accessibility to all participants (i.e. infrastructure and services with ADA and ABA guidelines). <p>Result: Develop a clear picture of the current conditions available at the site impacting the ability to deliver the desired Visitor Services programming.</p>	<p>Steps:</p> <ul style="list-style-type: none">Compare and document the differences between existing and desired conditions or resources and their impacts to visitors.Utilize analyzed findings to identify visitor use management methods and actions that will engage desired conditions from those that currently exist.Identify visitor strategies to reduce or remove barriers for desired audience(s), while ensuring that the use levels you are striving for will remain within the current capacity of the site.Develop a project action plan with a monitoring strategy. <p>Result: Compare current and optimal resources. Identify methods and actions for an action plan to achieve or maintain desired audience and conditions.</p>	<p>Steps:</p> <ul style="list-style-type: none">Implement the action plan, monitor the progress of the program, evaluate the results, and adjust the program as needed for a period of one year.Document ongoing monitoring results, and evaluate the effectiveness of management actions in achieving desired outcomes.Adjust management actions if needed to achieve desired outcomes, and document rationale. <p>Result: After one year, return to Step 1, Informed Reflection, to evaluate the success of the program and identify ways to enhance visitor connections and experiences.</p>

Appendix A - Glossary

1-Year Action Plan—A separate, optional document that lists the actions and assigns each task to a specific person or main point-of-contact with a desired timeframe for completion. If needed, the actions could be broken down into smaller tasks or steps for implementation. This table could also be used to track accomplishments related to SMART actions.

Actions—Individual steps needed to achieve outcomes (similar to SMART actions with targets for implementation). Station could add Strategies or Objectives between Outcomes and Actions if another level is desired.

Audience(s)—The suggested group(s) that could be reached by interpretive theme.

Desired Conditions—Statements of aspiration that describe resource conditions, visitor experiences and opportunities, facilities, and services for a particular area.

Desired Outcomes—Overall desired results in terms of learning, changing actions or behaviors, and change of conditions; can be short-term, intermediate, or long-term. Minimize the total number to a manageable level (Two to three max; Four to five if the refuge has a lot of resources). Consider developing outcomes that may be evaluated in the future; if the outcomes are not measurable, ensure that the actions are.

Guiding Principles—Specific, actionable words that guide every aspect of the vision and implementation of the Visitor Services Program (up to three, i.e. connect, engage, inspire, etc.)

Intangible—An abstract concept, such as feelings or beliefs.

Interpretive Theme—States the reason(s) why people should care about and for a resource.

Interpretive Matrix—Communication framework that emphasizes the rationale and validity of the interconnected biological and visitor services goals in relation to the cultural and natural history within and surrounding federal lands relevant to the public. Connects subject matters, themes and management efforts from the site to concepts and ideas that visitors can connect with in multiple applications such as interpretive and environmental education programming, exhibits, etc.

SMART Actions—A SMART action is one that is Specific, Measurable, Achievable, Relevant, and Time-specific.

Standards of Excellence—Provide a model for improving community engagement and strengthening local conservation outcomes. Standard 1: Know and Relate to the Community and Standard 4: Be a Community Asset, open the door to allow the agency to more fully embrace the other six standards with our community members, user groups, stakeholders, and beyond.

The eight Standards of Excellence are:

- Know and Relate to the Community
- Connect People with Nature via Stepping Stones of Engagement
- Build Partnerships
- Be a Community Asset
- Ensure Long-term Resources
- Provide Access for All
- Ensure People Feel Safe and Welcome
- Model Sustainability

Strategy—A specific action, tool, technique, or combination of actions, tools, and techniques used to meet unit objectives.

Supporting Ideas and Concepts—Provide key information, facts, or definitions that give support as to why people should care about the theme, what ideas are present, what needs to be explained, etc.

Tangible—Anything a person can see, hear, taste, smell, or touch.

Universal concepts—Subjects that everyone can relate to, but may be perceived differently.

Vision—A concise statement of what the planning unit should be, or what we hope to do, based primarily upon the FWS and site mission and purposes, and other mandates.

Appendix B - Supporting Materials from the Action Planning Process

Community Assessment Tools and Resources Overview

Our mission with the FWS is to work with others in our efforts to conserve our nation's natural resources for the continuing benefit of all Americans. This cannot truly be accomplished without first engaging our communities. The people in our communities are essential to our success at conservation. Increasing the FWS' presence and relevancy in communities will increase the public's connection with their natural spaces and build support for FWS programs. FWS staff, volunteers, and partners must proactively engage communities to develop meaningful connections to nature that will last a lifetime. This starts by building awareness, fostering deeper understanding, and growing participation through programs that will bring more people from the community into our conservation efforts.

When developing a visitor services program, success depends on our ability to engage community members and understand their needs and desires. We need to maintain consistent communications and learn what types of programs they would like to see offered.

These were some tools referenced to identify and gain a greater understanding of challenges or barriers facing the communities of Newbury and Newburyport, MA:

- Human Dimensions' Stakeholder Engagement Way finder Tool, <https://fws.gov/stakeholder-engagement>
- EPA's Eco-health Relationship Browser, <https://www.epa.gov/enviroatlas/enviroatlas-eco-health-relationship-browser>
- Headwater Economics' Socioeconomic Tool, <https://headwaterseconomics.org/tools/usfws-indicators/>

Community Asset Map of Newburyport and Newbury, MA

This map screenshot includes some amenities and features overlaid for the City of Newburyport to the north, the Town of Newbury in the center, and the upper portion of Parker River NWR to the southeastern corner.

An interactive ArcGIS map can be found at,

<https://fws.maps.arcgis.com/apps/mapviewer/index.html?webmap=01a5687d516c4c93aa339f8fc7ad8527>

Pre-Work Questions

To better guide the Visitor Services Review and the creation of a vision for the Visitor Services Program, all FWS staff engaged in visitor experiences, were asked to respond to the following questions. The following pages provide necessary background information to navigate the Visitor Services Review.

1. Give a brief description of your FWS site. Include the site's enabling legislation, purpose and how the lands were acquired, habitat types, and any other pertinent information.

Located along the northeast coast of Massachusetts in an area of dense and expanding human development, Parker River National Wildlife Refuge has special significance and value to migratory birds, other wildlife, and people. The refuge also provides high-quality opportunities for nature-based recreation, including walking & biking, wildlife observation and photography, hunting, fishing, paddling, and beach use.

The refuge was established in 1941, and today consists of more than 4,700 acres of diverse upland and wetland habitats including sandy beach and dune, maritime shrubs and forests, cranberry bogs, human-made impoundments, salt marsh and associated creek, river, and mud flat. These refuge habitats support varied and abundant populations of resident and migratory wildlife including more than 300 species of birds and additional species of mammals, reptiles, amphibians, insects, and plants. The refuge also provides critical habitat for the federally threatened piping plover.

Refuge headquarters and the visitor center are located on the mainland, in Newburyport, a city with a population of approximately 18,300 people (2020 U.S. Census). The 4,727-acre Parker River NWR is located within the towns of Newbury, Newburyport, Rowley, and Ipswich in Essex County. It occupies the southern three-fourths of Plum Island, a 9-mile-long barrier island, and hosts salt marshes, maritime dunes, maritime shrubland and forest, interdunal swales, sandplain grasslands, pitch pine woodlands, tidal estuary, beaches, rocky shores, and mudflats.

Parker River NWR lies within the Gulf of Maine watershed, which extends from Nova Scotia and New Brunswick, Canada to Cape Cod, Massachusetts. One of the world's most biologically productive marine ecosystems, the Gulf of Maine's waters and shoreline habitats host some 2,000 species of plants and animals. Ocean currents control temperatures and bring nutrients and food to the plants and animals that occupy the rich undersea terrain.

Parker River NWR is also situated within the 25,500-acre Great Marsh, a state-designated Area of Critical Environmental Concern (ACEC, CZM 2000). The Great Marsh is the largest contiguous salt marsh in New England, extending from Gloucester, Massachusetts to the New Hampshire border. Ecosystems within the Great Marsh include the barrier beach, dune, salt marsh, tidal river, and other water bodies. In recognition of its important wildlife value, a large portion of the area was designated by the State of Massachusetts as the Parker River/Essex Bay ACEC in 1979. An ACEC receives special consideration and protection by the State. The Great Marsh was also designated a Western Hemisphere Shorebird Reserve Network Regional site in 2004 for its importance as a migration stopover for shorebirds.

The Parker River watershed is in the northeast corner of Massachusetts, between the Merrimack River watershed to the north and the Ipswich River watershed to the south. It drains an area of 82 square miles, meandering 21 miles from its headwaters through a rolling landscape before emptying into Plum Island Sound at Parker River NWR. Of the estimated 52,000 acres in the Parker River watershed, approximately 15,000 acres, or 29% of the watershed, are in some form of permanent protection either through public ownership or with conservation easements or agriculture preservation restrictions (Tomczyk 2002).

National Wildlife Refuge	Date	Enabling Legislation, Encumbrances, Considerations	Purpose
Parker River NWR	1941	Migratory Bird Conservation Act (16 U.S.C. § 715d)	For use as an inviolate sanctuary, or for any other management purpose, for migratory birds.
Parker River NWR	1948	Proclamation 2817 (690 Stat. 238)	Closed 1,753 acres of tidal waters surrounding the refuge to pursuing, hunting, taking, capture, or killing of migratory birds, or attempting to take, capture, or kill migratory birds.

Parker River NWR	1962	Refuge Recreation Act (16 U.S.C. § 460k-460k-4)	For the: 1. Incidental fish and wildlife oriented recreational development; 2. Protection of natural resources; and 3. Conservation of endangered or threatened species.
Parker River NWR	1974	Proposed: Wilderness Act of 1964 (16 U.S.C. 1131-1136, 78 Stat. 890)	Proposed Wilderness Area (3,110 acres) - These lands are managed in the same manner as designated wilderness, so that, if they become wilderness, their wilderness character is preserved.

Table 9: Timeline showing enabled legislation as part of the establishment of Parker River NWR.

2. If known, describe your station's known history. How have people used the lands and waters at your site throughout history? Include Native lands and waters, settlement-era historic uses, modern era, etc.

- Unique glacial activity leading to creation of barrier island and salt marsh.
- Early Indigenous settlement was seasonal due to the harsh winter conditions on Plum Island and along the Atlantic Ocean. Indigenous communities traveled to the area and/or developed seasonal settlements to support fishing, shell fishing, hunting, and gathering including from the cranberry bogs located on the refuge and the abundant food sources available from the salt marsh. Permanent settlements were located further inland and along the Merrimac River and other tributaries.
- Indigenous communities were displaced, killed in conflict, exposed to diseases, enslaved, and/or assimilated into early Colonial communities. Displaced members largely dispersed into other Indigenous settlements in modern day NH, VT, ME, and inland MA which has made tracking histories challenging. Today many Indigenous community members are working to reconnect with their land and family history including on the north shore and Plum Island.
- Newburyport developed as a shipping and commercial center with the rise of the shipping trade and improving port infrastructure. Early colonists also engaged in salt marsh haying including on Plum Island, which was used for commercial and residential purposes. Salt marsh haying continues today, but popularity decreased with the rise of whale oil for heating.
- Over time, commerce developed in Newburyport and the area grew in residential offerings. Plum Island supported at various times permanent and seasonal camps, a polio camp for children, a hotel, a bustling downtown center, a salt factory, a tram, etc.
- Plum Island has been and remains popular for outdoor recreational and subsistence including hunting, clamping, and fishing.
- Salt Marsh History from the Habitat Management Plan:

Historic Influences:

From the 1600s to the 1800s, salt hay farmers systematically installed berms (embankments) and water control structures (boots) that worked in conjunction with the ditches to divide salt marshes into individual haying units, controlling hydrology to increase yield (Adamowicz et al. 2020).

In the 1930s, the Works Progress Administration further altered the salt marsh by adding additional ditches to help drain the marsh platform--with the objective to reduce mosquito breeding habitat.

In 1948, after the refuge was established, refuge staff created two brackish impoundments (North and Bill Forward Pools) by building a 1.5-mile dike in the salt marsh. A second shorter dike was built perpendicular to the first, splitting the area into two pools. Several years later, a third brackish impoundment (Stage Island Pool) was created at the southern end of the refuge by similarly damming the salt marsh.

From 1984 to 2009, the refuge partnered with the Mosquito Control District to implement open marsh water management (OMWM), a tool widely used to biologically control mosquito larvae and reduce pesticide use. OMWM involved installing plugs in ditches, creating additional pools as fish habitat, and constructing shallow access channels to connect the pools. The objective of OMWM is to keep water from ebbing from the marsh so that fish have access to all potential mosquito breeding areas during the entire tidal cycle. Following a regional study (James-Pirri et al. 2012; Rochlin et al. 2012), concerns were raised regarding the effects of impounding water on the marsh and the impact to marsh peat, particularly with sea-level rise (SLR) concerns. These discussions prompted the refuge in 2012 to discontinue further OMWM restoration.

These layers of human alterations resulted in a heavily impacted salt marsh system. The impacts are compounded by increased flooding from sea level rise and storm surge, resulting in widespread and rapid loss of high marsh habitat in recent years.

3. Provide a brief historical overview of your site's Visitor Services Program - both on and off FWS lands.

Parker River NWR has long supported a robust visitor services program, including the longest running mentored youth hunting program in the nation. The recreation fee program in large part contributes to the refuges' long-standing ability to provide wide-ranging opportunities and support seasonal staff and interns. Opportunities have been provided for all age ranges, from early elementary and summer day camp programming, to adult naturalist programs, to mentored outdoor opportunities, to regular walking and bus tours. The refuge also maintains a nascent Partnership with the City of Lawrence, including supporting in and out of school environmental education, community activity days, and recently a National Fish and Wildlife Foundation grant focused on establishing a new trail, vegetation management, and interpretive signage with community partners.

4. List all the staff members that are involved in your Visitor Services programs. Include the name, position, title, and a brief explanation of their contributions.

- Ella Weber – Visitor Services Manager/Lead: program administration, long-range planning, community engagement, partner development, Partnership coordinator, youth & intern development, outreach
- Jean Adams – Outdoor Recreation Planner: volunteer coordinator, gatehouse supervisor, fee program administrator, visitor center coordinator, programming & outreach, daily operations
- Scott Loder – Park Ranger: fee collector, programming and outreach, daily operations, fee program support, visitor center support, gatehouse intern support
- (Seasonal) – Education & Outreach Interns Coordinator: field trips, camps, programs, in-school support, outreach materials, curriculum development, volunteer training
- (Intern) Madelyn Kaplin – Shorebird Outreach & Visitor Services: volunteer training, programs, outreach materials, school field trip support, educational resource development
- (Vacant) - Administrative Assistant: pass sales, public communication – general phone, e-mail, and social media, visitor center support, fee management and budget coordinator for recreational fee program
- (Seasonal) Bill Isaacson – Park Ranger: fee collector, programming and outreach, daily operations, gatehouse intern support
- (Seasonal) Gatehouse Interns: pass sales, public communication – gatehouse FAQs, daily operations & routine maintenance

5. Describe your FWS site's annual visitation trends, including when the site has the most or least visitors and a description of seasonal user groups.

- See Visitor Use Survey 2022 for more details
- Approximately 300,000+ visitors each year
- Peak visitation from April to October (e.g. spring migration, beach season, fall migration)
- Beach goers, birders, hikers, wildlife photographers, cyclists, walkers

6. What are the goals outlined as part of your site-specific Comprehensive Conservation Plan, if available/applicable?

No CCP completed for Parker River NWR. Expected by 2026.

7. What are the biological priorities or resources of concern identified in your Inventory and Monitoring Plan?

- See Habitat Management Plan pages 13-16 and 85-101
- Salt marsh monitoring and restoration
- Migratory bird movement
- Salt marsh sparrow monitoring and restoration

- Shrub restoration
- Geomorphological studies
- Impoundment restoration/breach
- Support healthy barrier island system
- Manage invasive vegetation
- Support resiliency for coastal communities

8. Describe any frequent special events offered by your FWS site.

- See monthly program guides for routine offerings
- The following are recurring special events:
 - Let's Go Outside: annual outdoor event for families to participate in nature-based activities. All staff effort, as well as partnership effort with local community groups and allied organizations
 - Essex National Heritage 'Trails & Sails:' annual county-wide event for which the refuge always offers one to two programs such as paddling, hiking, behind the scenes access, etc.
 - Mass Audubon "Eagle Fest:" annual event for which the refuge always offers some type of raptor-focused programming such as crafts, live birds, photography tips, etc.
 - Essex County League of Sportsmen "Youth Waterfowl Hunt:" Mentored training and hunt for youth to learn about waterfowl hunting
 - Mass Wildlife / Artemis "Women's Waterfowl Hunt" & "Women's Outdoor Skills 101" & "Women's Learn to Paddle:" Mentored training and field opportunities for women to gain outdoor skills and confidence
 - Annual lottery-based opportunities: 2-day shotgun deer hunt and cranberry/beach plum picking
 - Lawrence Community Boathouse "Field Day"
 - Walk for the Wild: Week-long October event co-hosted with the Friends which also includes opening of the North Pool Dike to hikers and celebration of National Wildlife Refuge Week.

9. What existing recreational programs are offered by nearby partners? And, for which user groups (e.g. age, interests)?

We have a number of conservation organizations locally and regionally that provide a spectrum of nature-based and recreational opportunities for all ages. Our area is well-resourced and provides a wealth of opportunities for community members to participate in.

10. Describe the community demographics within a 25-mile radius of the FWS site.

To learn more about the communities of Newbury and Newburyport, please reference Headwaters Economics' Socioeconomic Tool link in Appendix B.

See demographics reports and visitor use survey 2022

11. What are the top five challenges or barriers for your Visitor Services program as a whole?

- Staffing, retention, career pathways and ladder opportunities for staff and interns. Ability to "do it all" with limited staff pulled between daily operations, administrative tasks, routine programming versus the ability to focus on big picture planning, community partnership development, expanding school field trip capacity, and supporting the partnership in Lawrence in a way that is meaningful and sustainable.
- The ongoing effects of sea level rise, storm surge, and coastal flooding, has current and near-future impacts on access to public use areas.
- High volume of recurring and long-time visitors who may be apprehensive about change.
- Lower engagement of youth, teens, young families compared to other demographics.

12. What are the top five opportunities for your Visitor Services program as a whole?



- Staff dedication, enthusiasm, and passion
- Dedicated volunteers, Friends groups, and routine visitors who are willing and / or able to serve as community ambassadors.
- Allied community partners and local organizations.
- Large variety / density of local schools, youth organizations, homeschool groups, youth services, etc.
- Strong collaboration between all refuge departments.

13. What actions have you taken to engage your community(ies) and/or develop partnerships? In other words, how do you shine in your community?

Participation in local community events, workshops, working groups, etc. Collaborating with partnership organizations to support intern development, work on conservation and outreach projects across boundaries, and serve as a “living classroom.” Working with partner organizations to offer novel programming. Working with partner organizations to offer “gateway” opportunities outside the ‘Big 6’ public uses.

14. Briefly describe the resources and programs your FWS site currently offer in the following categories. Please answer concisely, but provide enough detail to explain the scope of your offerings and high-level staff involvement.

- Supporting and Developing a Friends Organization: Robust Friends group that supports programming, maintenance, fundraising, intern funding, and more. Monthly meetings and annual meeting.
- Supporting and Developing a Volunteer Program: Robust volunteer organization that supports maintenance, visitor services, management, and biological priorities including many long-standing volunteers as well as new recruits.
- Existing Communications Efforts:
 - Signs: good condition, refuge-wide
 - Exhibits: visitor center, visitor contact station, interpretive panels at most trailheads
 - Social Media: Active Facebook page with large following and engagement
 - Website: Comprehensive, used for updates, events calendar, blogs, notifications
 - Publications (brochures, newsletters, etc.): Monthly volunteer newsletter, brochures for individual activities, general brochure, fact sheets
 - Programming: Robust programming (see program schedules)
 - Other: local news outreach, posting to local Facebook pages and calendars, etc.
- Public Uses—We recognize the work done on FWS sites to engage visitors in wildlife-dependent recreational activities. Recruitment, retention, and re-activation (R3) can assist in framing programming for audiences at various levels of knowledge, mentorship abilities, and opportunities to engage those audiences at experience levels: a novice, advanced beginner, competent, proficient, and expert.
 - Hunting: lotteried hunts + youth mentored hunt + women’s mentored hunt.
 - Fishing: night fishing, surf casting, youth fishing derby partner, learn to fish events.
 - Environmental Education (both on and off site – staff-led, self-led, teacher workshops, educational trunks, etc.): dedicated youth outreach intern, regular field trips, in-classroom visits, Junior Duck Stamp, shorebird youth art contest, summer and February EE “camps,” women’s outdoor 101 courses, virtual classroom visits, facilitated access for college classrooms, partnership with allied organizations’ EE programming.
 - Interpretation (both on and off site): see program calendar + facility offerings (VC, VCS).
 - Wildlife Observation: Numerous boardwalks, overlooks, and trails through varied habitats.
 - Photography: See above - same access.
- Other Compatible Public Uses—These are compatible activities on and off FWS lands outside the scope of the programming listed above.
 - See above on community engagement and opportunities beyond the “Big 6” public uses.
- Providing Training for Staff, Friends, and Volunteers—Annual trainings provided as well as funding for professional

development for interns and volunteers and standard service opportunities encouraged for program staff, as well as detail opportunities.

- Visitor Use Facilities—Trails, boardwalks, visitor center, visitor contact station, overlooks, boat launch, bathrooms, picnic tables.
- Recreational Fee Program (If applicable, include an analysis of current or anticipated fees) - See 2024 fee report and 5-year plan submitted January 2024.

15. How frequently do you monitor and evaluate your Visitor Services programs, and how do you use this information to update or modify your programs?

Annual data calls, planning reports, monthly all team meetings, individual check-ins, quarterly meetings with program leads, annual work planning all staff meeting, quarterly team work planning meeting.

Appendix C - Discontinued Programming

Following evaluation during the on-site Visitor Services Review, the list of public uses below are unsustainable and are therefore discontinued. This information is subject to change annually or as needed, depending on workload, staff capacity, and as budgets dictate.

Movie nights:

Due to low attendance over the past two years, including no-shows and other local groups providing film nights that seem to be relatively well-attended, there is not a need for the refuge to duplicate efforts.

\$2 fees for cyclists and pedestrians:

As of December 9, 2024, the \$2 fee for cyclist and pedestrian is removed in favor of key user groups.

Appendix D - Aspirational Actions

The following list of actions per Guiding Principle was generated during the Visitor Services Review, but were deemed to be aspirational in nature. These projected SMART elements might be pursued and/or adapted beyond the expected 5-year timeframe of this Visitor Services Action Plan.

Guiding Principle: Collaborate

- **Action:** Over the next year, refuge staff will work with graphic design and outreach interns and volunteers to remove old, temporary displays at the VCS and replace them with at least one updated exhibit display that focuses on a specific high-priority management need or call to action (e.g. “walk around the flock”).
- **Action:** Over the next two years, graphic design and outreach interns will work with the visitor services team to organize photos on the refuge network drives to facilitate the use of more relevant, up to date photos in refuge outreach and communication materials.
- **Action:** Within two years, refuge staff will work with Friends and other partners like Mass Wildlife & Essex County League of Sportsmen to expand introduction to hunting opportunities to non-hunting families. If possible, refuge staff will work with partners to provide necessary equipment to improve access to hunting and offer family hunts catered to non-hunting families.