MALLOWS BAY POTOMAC RIVER NATIONAL MARINE SANCTUARY

Feasibility Study for a new Visitor Center
Final Report

December 11, 2024

Study Completed For:
Charles County Government, Maryland
Department of Recreation, Parks, & Tourism

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In partnership with:
- Mallows Bay National Marine Sanctuary Advisory Committee (SAC)
- State of Maryland Department of Natural Resources (DNR)
- Maryland Historical Trust (MHT) / Maryland State Historic Preservation Office (SHPO)

Additional Stakeholder groups include:
- Bureau of Land Management
- Maryland Department of Natural Resources (DNR)
- National Park Service
- Potomac River Fisheries Commission
- Southern Maryland National Heritage Area
- Town of Indian Head, Maryland
- Tri County Council for Southern Maryland
- United States Department of Defense
- Community Members

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1. EXECUTIVE SUMMARY

Charles County Recreation, Parks, and Tourism in partnership with the National Oceanic and Atmospheric Administration (NOAA), and the State of Maryland Department of Natural Resources (DNR), and Maryland Historic Trust (MHT) are in the process of planning and development of a “Center” for the Mallows Bay Potomac River National Marine Sanctuary which will serve as a community resource that will feature historical, cultural, and natural resources and will serve as a gateway between the sanctuary and the public. This building is envisioned as both a community hub and tourism destination, with exhibit and office space for the sanctuary and partners, a classroom for educational programs, flexible space for local groups and town/county events, and open areas for public space and outdoor installations. The first step in this process is this feasibility study that engages the community and stakeholders, and identifies the potential locations in Charles County.

The purpose of this feasibility study is to help determine possible locations and preliminary design for a new Visitor Center for Mallows Bay-Potomac River National Marine Sanctuary (MPNMS). Following this study, and the potential receipt of a grant from the National Oceanic and Atmospheric Administration, the next step will be to launch the National Environmental Policy Act (NEPA) Process to analyze proposed action and alternatives further for the new visitor center. Upon completion of the NEPA process, Charles County will determine the next steps for the center’s design and construction.

From July 2024 – November 2024, the design team, consisting of planners, engineers, architects, and market research analysts, assisted in the feasibility study process for the future Mallows Bay - Potomac River National Marine Sanctuary (MPNMS) Visitor Center. The process included virtual and in-person community engagement, stakeholder feedback meetings, presentations to the MPNMS Co-management Team and Sanctuary Advisory Council, as well as the Charles County Board of Commissioners.

To increase the connectivity of existing and planned local points of interest, the building location is envisioned to be in a centralized locale that provides public access to resources, water and land-based recreation, historical, cultural, and ecological interpretation, formal and informal education, and resource stewardship. Information from the community survey results, and feedback from community members and stakeholders, which is provided in more detail in Section 3 of this report, led the design team to narrow down potential geographic regions to those located on or near the water, and within a 30-45-minute drive of the Mallows Bay Potomac River National Marine Sanctuary. Geographic regions were narrowed down, and potential sites were identified based on the following evaluation criteria: proximity to MPNMS, water access, availability, programmatic & educational opportunity, and economic impact. Zoning, infrastructure, parking, access, and environmental inventory were also assessed at each site.

Programmatically, the project will provide visitors with a unique interactive educational and interpretive facility to serve as the gateway to MPNMS. The Visitor Center will feature interactive exhibits describing the sanctuary’s historical, cultural, and natural resources, including shipwrecks, indigenous peoples, wildlife, environmental resources, human uses, challenges, and solutions. The facility design will incorporate as many sustainable and climate-smart features as possible to negate carbon emissions and to adapt to the impacts of climate change. The physical building itself will be a teaching tool, with exhibits inside and outside of the facility. The center will be fully accessible and physically and socially welcoming and inclusive to all people. The project will also serve as a community resource for the County and an important addition to the County’s built environment. The building is envisioned as a community hub, with exhibit and office space for the sanctuary and partners, classrooms for educational programs, flexible community rooms for local groups and town/county events, open areas for public space and outdoor installations.

MAP OF POTENTIAL SITES FOR THE NEW VISITOR CENTER

During the feasibility study, it was determined that *not* taking any action to further develop and design a new visitor center is still an option to be evaluated. In the event that the decision is made to not move forward on a new visitor center, the co-management team will need to redefine how the MPNMS Final Management Plan is implemented. The Final Management Plan (FMP), which was created in 2019 as part of the sanctuary designation process and in accordance with the NMSA, NOAA, in partnership with the state of Maryland and Charles County, Maryland, developed this FMP to identify site-specific goals, objectives, strategies, and activities to ensure the sanctuary best achieves its mission and the community-based vision. It includes five key action plans - **Resource Protection; Recreation and Tourism; Education; Research, Science, and Technology; and Sanctuary Operations and Administration**. As stated in more detail in Section 10 of this report, a new visitor center helps to further implement the goals and strategies of the FMP. If a new center is not constructed, great difficulties will be established in carrying out the FMP.

2. INTRODUCTION

2a. Project Information

Mallows Bay-Potomac River National Marine Sanctuary is an 18 square mile portion of the Potomac River about 30 miles south of Washington D.C. The sanctuary is most known for being the largest shipwreck fleet in the Western Hemisphere. Within these waters lie the remnants of over 100 World War I ships—built to take supplies to Europe for the war, but never crossing the Atlantic before the war ended. These wooden ships were then sold for salvage of their metal components, and eventually the majority came to rest at Mallows Bay. Today, these vessels serve as a unique combination of historic and natural resources, as many of the wooden hulls are now thriving ecosystems, complete with trees, grasses, birds, and mammals. Mallows Bay is also home to deep cultural roots. From the Piscataway people who originally inhabited the land, to the once thriving farming and fishing industries that used to exist in the area, there are many stories to be told of years gone by.

MPNMS was designated as a National Marine Sanctuary in fall of 2019. At that time a co-management team was established consisting of representatives from NOAA, the State of Maryland- both the Department of Natural Resources (DNR) and the Maryland Historical Trust (MHT), and the Charles County Government. This team of co-managers, using feedback from a Sanctuary Advisory Council (SAC) works to ensure that the Sanctuary is run in accordance with the Management Plan and many of the stakeholder groups.

The Management Plan for the sanctuary includes 5 main areas of action:

- Resource Protection
- Recreation and Tourism
- Education
- Research, Science, and Technology
- Sanctuary Operation and Administration

The purpose of this study is to help determine the best location and preliminary design for the Mallows Bay-Potomac River National Marine Sanctuary (MPNMS) Visitor Center.

This feasibility study provides insight to the co-management team working to determine the best location and design for a visitor center for the sanctuary. The study encompasses the elements of the Mallows Bay Management Plan and include engagement and input from the public and stakeholders.

The project will provide visitors with a unique interactive educational and interpretive facility to serve as the gateway to MPNMS. The Visitor Center will feature interactive exhibits describing the sanctuary's historical, cultural, and natural resources, including shipwrecks, indigenous peoples, wildlife, environmental resources, human uses, challenges, and solutions, and will serve as a gateway between the sanctuary and the public. The facility design will incorporate as many sustainable and climate-smart features as possible to negate carbon emissions and to adapt to the impacts of climate change. The goals, strategies and actions of the "Office of National Marine Sanctuaries Climate Resilience Plan 2024-2026" will be incorporated to the maximum extent practicable. The physical building itself will be a teaching tool, with exhibits inside and outside of the facility highlighting the incorporated sustainable systems, demonstrating solutions and leading the way forward. The center will be fully accessible and physically and socially welcoming and inclusive to all people. The project will also serve as a community resource for the County and an important addition to the County's built environment. The building is envisioned as a community hub, with exhibit and office space for the sanctuary and partners, classrooms for educational programs, flexible community rooms for local groups and town/county events, open areas for public space and outdoor installations. To increase the connectivity of existing and planned local points of interest, the building location is envisioned to be in a centralized locale that provides public access to resources, water and land-based recreation, historical, cultural, and ecological interpretation, formal and informal education, and resource stewardship.

2b. Feasibility Study Methodology

The design team carried out the feasibility study process from July 2024 – November 2024, in collaboration with Charles County, community members, partners, and stakeholder groups. The study began with a kick-off meeting to review and the vision, mission, goals, timeline, and deliverables of the project. The next step in the study was to determine the best possible geographic areas in Charles County for analysis of the new center. In order to best define these regions, it was critical to gather feedback from the community and key stakeholders. An online community survey was launched, and an in-person community meeting was held in Indian Head, Maryland. The design team also met with members of key stakeholder groups including:

- Charles County, Department of Recreation, Parks, and Tourism
- Mallows Bay National Marine Sanctuary Co-Management Team
- Charles County Board of Commissioners
- Mallows Bay National Marine Sanctuary Advisory Committee (SAC)
- State of Maryland Department of Natural Resources (DNR)
- Maryland Historical Trust (MHT) / Maryland State Historic Preservation Office (SHPO)
- Bureau of Land Management
- Maryland Department of Natural Resources (DNR)
- National Park Service
- Potomac River Fisheries Commission
- Southern Maryland National Heritage Area
- Town of Indian Head, Maryland
- Tri County Council for Southern Maryland
- United States Department of Defense
- Community Members

Information from the community survey results, and feedback from community members and stakeholders, which is provided in more detail in Section 3 of this report, led the design team to narrow down potential geographic regions to those located on or near the water, and within a 30 - 45-minute drive of Mallows Bay Potomac River National Marine Sanctuary. Then, as part of the investigation of potential sites, the design team toured MPNMS on both land and water, then explored various other locations within Nanjemoy, Indian Head, and Marbury, Maryland.

Following the in-person tours, the design team performed a land acquisition analysis of up to four potential geographical locations for the new visitor center. This included a review of land costs and values within a defined market area surrounding each site using CoStar, a private real estate data source, and the Maryland Department of Assessments and Taxation's (SDAT's) property tax records. For the land acquisition analysis, the Team also considered current zoning classifications, current ownership of each site, existing site conditions including available desktop-level environmental constraint information, as well as access to infrastructure necessary for the operation of the Visitor (i.e., roads, water, sewer, etc.) to be able to estimate land acquisition costs. Analysis included the following:

- Review the County's Comprehensive Water and Sewerage Plan to determine water and sewer availability.
- Review of available domestic water, sanitary sewer, power, gas, and telecommunications records to determine utility availability.
- Review of roadway classifications to determine potential roadway capacity in the vicinity of the geographic locations.

- Review available bus route information in the vicinity of the geographic locations to determine bus service availability for visitors to the facility.
- Other site factors studied in land acquisition analysis included a study of site access, parking, identification of supporting tourism infrastructure and visitor services such as food, lodging, equipment, and other amenities.
- Brief summary of permitting required for each location.
- Ease of access (parking, accommodation of school buses)
- Opportunity for expansion

Using current attendance information available from Charles County and the State of Maryland and a review of visitor information available from another community-based operation, Thunder Bay National Marine Sanctuary, the Team estimated the number of attendees at each potential visitor center site. This analysis included a breakdown of the geographic origin of the projected attendees.

Based on the results of the online survey, stakeholder feedback, and the County's guidance, the design team developed a program that meets the MPNMS Management Plan and project goals. The program considers new construction or renovation of existing structures and the opportunity for expansion. The goal for this visitor center is for it to be a net zero/sustainable facility/site.

The design team also performed an environmental inventory and supporting analysis and documentation through desktop analysis for each potential site, to ensure the project will be developed in compliance with applicable environmental laws and regulations and supplement analysis for future National Environmental Policy Act (NEPA) documentation. The environmental inventory can be found in Section 5 of this report, and includes:

- Potential wetlands and streams, from the National Wetlands Inventory (NWI) database maintained by the U.S. Fish and Wildlife Service (USFWS) and the U.S. Geological Survey's National Hydrography Dataset.
- Floodplain boundaries from Federal Emergency Management Agency Flood Insurance Rate Maps and locality maintained geographic information systems (GIS) data
- Land, Forest, Critical Area, and Soils information
- Climate Resiliency Factors
- Historical and Cultural Resources
- Sensitive species and habitat considerations, including rare, threatened and endangered species information, determined through a query of the USFWS' Information for Planning and Consultation information database;
- Environmental Justice Information
- Known hazardous materials

The project team identified anticipated permitting needs and document design factors which may impact environmental coordination during future design stages.

Economic factors were also studied as part of this process, which can be found in Section 7 of this report. The Team prepared an estimate of the economic impact to the local area at each geographic location, looking at projected attendance rates and partner investments and also by using IMPLAN software. The team has also provided a rough order of magnitude (ROM) cost estimate for the project, which can be found in Section 6 of this report.

A summary level matrix of the above components, with ratings, can be found in Section 9 of this report, for the County's use in the next phase of the project.

As part of the process, the design team also presented to and received feedback from the MPNMS Co-Management Team, the MPNMS Sanctuary Advisory Committee, and Charles County Board of Commissioners.

During this study, Charles County Department of Recreation, Parks, and Tourism prepared and submitted a grant application to the National Oceanic and Atmospheric Administration (NOAA). This is a non-competitive grant that would provide $5 million to Charles County, Maryland (Charles County) via a non-competitive cooperative agreement, to support the partnership between the County and Mallows Bay-Potomac River National Marine Sanctuary (MPNMS) and to fund planning, architectural/design services, interpretive design services, construction management services and other professional services required to design and build a Visitor Center in Charles County for MPNMS.

If this grant is received, the next step will be to launch the National Environmental Policy Act (NEPA) process to analyze proposed action and alternatives further for the new visitor center. Upon completion of the NEPA process, Charles County will determine the next steps for the center's design and construction.

The NEPA process is a set of steps that federal agencies must follow to assess the environmental impact of their actions, which includes:

1. Identify the need: The process begins when a federal agency develops a proposal to address a need.
2. Identify alternatives: Consider other ways to meet the need.
3. Analyze environmental impacts: Evaluate the environmental impact of each alternative.
4. Make a decision: Choose which alternative to pursue and how to do it.
5. Make information available: Share the results of the analysis with the public.

The NEPA process can involve different levels of analysis, including:

- Categorical Exclusion (CATEX): A federal action may be exempt from a detailed environmental analysis if it's not expected to have a significant environmental impact.
- Environmental Assessment (EA): If a CATEX doesn't apply, an agency may prepare an EA to determine if the action could have significant environmental impacts.
- Environmental Impact Statement (EIS): An agency may also prepare an EIS.

The NEPA process helps ensure that federal agencies make environmentally sound decisions. It also provides the public with an understanding of the potential environmental impacts of proposed actions.
The NEPA process will include in-depth community and stakeholder engagement.

Also, it should be noted, per Sections 106 and 110 of the National Historic Preservation Act, that when it comes to analyzing any potential locations for a new center, an in-depth survey, both on land and water will be part of the process, and will be required as part of the Maryland Historical Trust compliance review. Ultimately, there may be a need for avoidance or mitigation of any resources found, and this is addressed in the cost estimations in Section 7 of this report.

2c. Feasibility Study Timeline

The following timelines of activities occurred during the duration of the MPNMS Visitors Center Feasibility Study:

7/1/24	Project Award & Notice to Proceed
7/11/24	Kick Off Meeting
7/31/24	Issue Public Survey for Community Input (electronic)
8/9/24	Community Feedback Meeting (in person)
8/13/24	First Round of Public Comment Feedback completed (both digital and in person meetings)
8/15/24	Design Team Tours of MPNMS and potential Visitor Center sites in Charles County
8/30/24	Stakeholder Input Meeting 1
9/04/24	Stakeholder Input Meeting 2

9/12/24 Present preliminary findings to MPNMS Co-Management Team
9/16/24 Present preliminary findings to MPNMS Sanctuary Advisory Committee
9/19/24 NOAA Cooperative Agreement Application Due
10/01/24 Present preliminary findings to Charles County Commissioners
11/01/24 Draft Final Feasibility Study Report Deliverable
11/27/24 Final Feasibility Study Report Deliverable

3. PUBLIC ENGAGEMENT

Based on the project priorities in the information listed above, this Visitor Center will serve as a community hub, and as such, a period of public comment and engagement is an important part of the feedback and analysis process. The analysis of the potential locations includes feedback from both the local community and stakeholders, as well as the general public and future visitors. This feedback was gathered through an online survey and public meeting. As mentioned above, additional feedback was obtained from MPNMS Co-Management Team, the MPNMS Sanctuary Advisory Committee, and Charles County Board of Commissioners. This feedback has been incorporated in the location analysis and has informed the selection of potential Visitor Center locations.

3a. Public Survey Results Summary

The public survey, created by the design team in collaboration with Charles County, was designed and administered online using a cloud-based electronic survey tool by SurveyMonkey.com. Community members throughout Charles County, Maryland, and Virginia were notified about the survey through email communication, social media, and paper postings in local Charles County community buildings. The survey was open for responses from 7/31/24 - 8/12/24, and took approximately 10 - 15 minutes to complete, with 27 questions. The survey yielded 470 responses, and the responses have been summarized below.

Information about the participants

1. There was a wide age range of Survey participants ranging from under 25 years old to 80 years old and above. The most common age range making up 41.7% of the participants fell between ages 40 – 59, with 29.15% between ages 60-79, and 20.85% between ages 26 – 39.
2. Survey participants were asked to state their town of residence. This was optional, however, approximately 97% participants provided a response, and results indicate a wide geographic range. A summary is listed below:

Town	# of Participants	%
Nanjemoy	102	22.67%
La Plata	56	12.44%
Waldorf	55	12.22%
Indian Head	44	9.78%
Bryans Road	21	4.67%
White Plains	21	4.67%
Marbury	14	3.11%
Welcome	14	3.11%
Port Tobacco	12	2.67%
Hughesville	11	2.44%

Newburg	10	2.22%
Charlotte Hall	5	1.11%
Pomfret	5	1.11%
Alexandria	4	0.89%
Charles	4	0.89%
Mechanicsville	4	0.89%
Accokeek	3	0.67%
Baltimore	3	0.67%
Bel Alton	3	0.67%
Ironsides	3	0.67%
Issue	3	0.67%
Odenton	3	0.67%
Upper Marlboro	3	0.67%
Washington DC	3	0.67%
Annapolis	2	0.44%
Brandywine	2	0.44%
Cobb Island	2	0.44%
Columbia	2	0.44%
Fort Washington	2	0.44%
Oxon Hill	2	0.44%
Silver Spring	2	0.44%
St. Marys	2	0.44%
Bensville	1	0.22%
Bowie	1	0.22%
Bryantown	1	0.22%
Callaway	1	0.22%
Chaptico	1	0.22%
Chestnut Hill Cove	1	0.22%
Chicamuxen	1	0.22%
Coltons Point	1	0.22%
Denton	1	0.22%
Dentsville	1	0.22%
Gaithersburg	1	0.22%
Grantsville	1	0.22%
Grayton	1	0.22%
Hanover	1	0.22%
Huntingtown	1	0.22%
Hyattsville	1	0.22%
King George	1	0.22%
Lusby	1	0.22%
Mitchellville	1	0.22%
Pasadena	1	0.22%
Pisgah	1	0.22%
Prince Frederick	1	0.22%
Rison	1	0.22%
Scotland	1	0.22%

Severna Park	1	0.22%
Swan Point	1	0.22%
Timonium	1	0.22%
Virginia Beach VA	1	0.22%
TOTAL	**450**	**100.00%**

3. 70.89% of participants did not have children under the age of 16.
4. 79.56% of participants have been to MPNMS. Those who have visited enjoy a wide range of activities including Hiking (46.86%), Kayaking (39.69%), Wildlife Exploration (32.74%), Historic Exploration (26.46%), Fishing (23.09%), Picnics (18.61%), Boating (13.69%), Research / Science (7.4%), and Biking (4.48%). Other comments included photography, dog-walking, Nanjemoy fire department /rescue / emergency services from boat launch, sight-seeing, canoeing, events, and quiet / meditation,
5. Nearly half of the participants currently visit MPNMS at least once a year (22.8%) or four times a year (25.28%)
6. For those who have not visited MPNMS, top reasons cited included that they were making plans to visit in the future, they were not familiar with the location, or there were no permanent restrooms available. Other comments included terrain makes it difficult to access, and children not of age to kayak yet.

Access to the new Visitor Center

7. When asked how far participants would be willing to travel from their residence to the new Visitor Center, 38.16% stated 30 minutes or less, 20.46% stated 45 minutes or less, 17.24% stated 60 minutes or less, and 17.7% stated 10 minutes or less.
8. Over half of the participants stated that it was not important or somewhat not important for the center to be accessed by public transportation. An overwhelming 93.52% of participants stated that their preferred means of access to the new visitor center would be by car.
9. A majority of participants stated that it is very important (51.63%) or somewhat important (21.4%) for the new Visitor Center to be within walking distance of Mallows Bay Park. When asked if, hypothetically, the new center would be located elsewhere in Charles County, over half of participants stated that they would prefer a less than 5 minute drive (44.26%) or less than 15 minute drive (25.06%). Many felt that close proximity of the new center to MPNMS was extremely important, and around 15 – 20 respondents commented with phrases such as “What’s the point of a center if not at Mallows Bay?” and “If it is NOT on the present grounds I would have no reason to ever visit the center!”
10. Over half of the participants were not interested (54.93%) or somewhat not interested (10.09%) in taking a bus from the new center to Mallows Bay Park, while almost 54% were interested in taking a boat, if available, from the new center to Mallows bay Park.

New Center Setting & Activities

11. When asked to rank the best setting for the new center, a majority ranked Waterfront Setting as #1, Rural Natural Setting as #2, and Town/ Urban / Developed Setting as #3.
12. When asked what activities would interest folks in coming to the new center, there was a wide range of interest in a variety of activities, including:
    a. History / Exhibits (83.49%)
    b. Marine /Aquatic Life Observation (70.81%)
    c. Access to Mallows Bay Park (70.10%)

d. Outdoor Activities / Sports (50.24%)
e. Cultural Education & Events (50.24%)
f. Community Events (48.09%)
g. Research / Science (45.45%)
h. Employment / Volunteerism (22.97%)

13. When asked what programmatic features inside the new center are of most interest, the following were selected:
    a. Areas for Nature Exhibits (81.88%)
    b. Areas for Historic Exhibits (78.26%)
    c. Areas for Children (50.48%)
    d. Areas for Classrooms / Learning Space (43.24)
    e. Areas for Events / Entertainment (36.96%)
    f. Area for Community / Gathering Rooms (29.95%)
    g. Areas for Research (29.47%)
    h. Area for Work / Admin (11.11%)
    i. Other (5.8%)
14. When asked what programmatic features on the site of the new center are of most interest, the following were selected:
    a. Wildlife Observation Areas (73.97%)
    b. Walking / Hiking Trails (72.26%)
    c. Picnic Tables / Pavilions (66.42%)
    d. Historic / Cultural Exhibits (64.48%)
    e. Kayak / Paddleboard Access (59.85%)
    f. Outdoor Education Space (43.31%)
    g. Waterfront / Beach Gathering areas (43.31%)
    h. Boat Tours (41.36%)
    i. Boat Access (33.58%
    j. Fishing Platforms (32.12%)
    k. Open Space for Public Gatherings (30.9%)
    l. Sculpture / Public Arts (29.2%)
    m. Biking trails (26.52%)
    n. Community Garden / Growing Plots (18.49%)
    o. Bike Storage / Parking / Repair Station (10.71%)
    p. Outdoor Shower Facilities (9.73%)
15. When asked about what amenities are of interest for children and families, the following were selected:
    a. Educational Activities (58.78%)
    b. Children's Exhibits (54.15%)
    c. Playgrounds (44.63%)
    d. Mothers Room / Diaper Changing Areas (36.83%)
    e. Child-Friendly Boat Tours (34.63%)
    f. Sensory Environments (34.63%)
    g. Water Activities (29.02%)
    h. Splash Pad (27.32%)
    i. Not applicable (22.68%)
16. When asked what other amenities would be important to have near the new center, participants responded with the following, including a majority stating very few or none.
    a. Very few or no amenities, I prefer a natural / rural setting (61.86%)

b. Other historical points of interest (29.83%)
c. Campgrounds (27.63%)
d. State Parks (26.41%)
e. Restaurants (25.92%)
f. Gas Stations (23.47%)
g. Brewery / Winery (17.11%)
h. Pharmacy / Convenience Store / Grocery Store (7.33%)
i. Hotel (5.87%)
j. Library / Movie Theater / Entertainment (4.16%)

17. When asked what services or goods they would be willing to pay for, related to the center, participants responded with the following, however, in the comment sections, some responded that activities should be free.
    a. Food & Drink (68.63%)
    b. Kayak Rental (65.2%)
    c. Rentable Outdoor Pavilion (40.93%)
    d. Marine / Aquatic Tours / Shows (40.2%)
    e. Boat Rental (37.99%)
    f. Outdoor Walking Tours (27.94%)
    g. Rentable Indoor Event Space (27.7%)
    h. Bike Rental (26.72%)
    i. Indoor Exhibit Tours (22.79%)
18. When asked which of the activities participants would be interested in reserving the center for, responses included:
    a. Educational Outings (56.54%0
    b. Family Parties (41.23%)
    c. Art Fairs or Local Vendor Markets (37.53%)
    d. Cultural Events (31.11%)
    e. Community Meetings (22.72%)
    f. Weddings (14.57%)
    g. Corporate Events / Parties (13.58%)

Frequency of Visitation & Special Accommodations

19. When asked how often folks saw themselves coming to the new visitor center, 44.08% responded four times a year, 23.51% responded once a year, 15.84% responded monthly, and 13.37% responded one time only.
20. When asked an open-ended question about participants having any unique requests or special needs that they would like the team to consider, that would better enable then to visit and / or experience the new Visitor Center, some of the comments received include:
    a. Accessibility / Wheelchair Access
    b. Benches / Seating
    c. Fishing Platform w/ fishing rental equipment
    d. Dog / Pet area
    e. Fenced in children's play areas
    f. Activities for individuals with Hearing / Vision Needs, Special Needs and/or Intellectual Disabilities
    g. Multi-lingual Signage / Captions for Hearing Impaired

h. Inclusive Restrooms
i. Native Plantings / Sustainable Green Building Materials
j. Car / Boat unloading zones
k. Safety & Security
l. Outdoor electrical or water access
m. Water Fountains
n. Trash & Recycling Disposal areas

Additional Survey Commentary

There were additional suggestions and thoughts about the visitor center provided in written comments throughout the survey, and summarized below.

Suggestions for areas to be addressed in the new center:

- **Honor Heritage**
  - History of Black Waterman
  - Including Piscataway tribe in the cultural programming -tell the story of fleet & but history of the land
- **Partnerships**
  - Partner with Navy to create a Naval Museum with the Visitors Center
  - Opportunity for connection with schools, other local agencies like NPS, BLM, USFWS, MD DNR, etc.
- **Family-Friendly**
  - Camping; Snacks &/or water, restroom & rest area for kayakers, bikers, & hikers; Arts & Crafts programming
- **Child-Friendly**
  - Children's exploration areas & activities - like Calvert Marine Museum
- **Education & Science**
  - Provide bus tours to other ecological sites in Charles County
  - Role of three watersheds that support Mallows, Mattawoman, Port Tobacco, & Nanjemoy, protect environmental integrity of the National Marine Sanctuary as a bioreserve south of Washington
  - Research / Science spaces for observation; Citizen Science Program like Jugs Bay
- **Sustainable Design**
  - Native plants/landscape, sustainable and green building materials, green practices demonstrated throughout-- permeable hardscape/ parking areas Building design is creative

Comments against the new center:
There were approximately 35 - 50 participants that regularly commented throughout the survey that they do not want any visitors center, or they were ok with minimal amenities being added but wanted limited development to keep the natural setting of Mallows Bay Park / MPNMS. Reasons cited:

- Do not want more people, tourism to negatively impact the wildlife, quiet rural setting
- Fear of over-population & new development related to the center in Nanjemoy
- Do not want an increase of garbage / waste in the natural areas / near the water
- Do not want more traffic on local roads, or road widening
- Do not want to spend more tax payer money
- Site is where ships were abandoned, so they do not want to honor it
- Nanjemoy / Mallows Bay are not busy enough to support a center
- Other county improvements needed more

3b. Community Input Meeting Summary

The following is a summary of comments from the Community Input Meeting, held at the Village Green in Indian Head, Maryland on 08/09/24

- Some attendees were opposed to any development in Nanjemoy – they do not want to disrupt the rural / natural setting or draw more traffic & tourism – opinion was that if center is built, it should be put in a developed area
- Some thought bringing more money to Nanjemoy would be helpful to keep up infrastructure & roads
- Some felt Indian Head would be agreeable for the future center, requested that the community be involved in those conversations; appreciated that Indian Head is already developed and valued the idea a new center could bring more jobs & resources
- Some value the idea of having more educational & scientific amenities in the area for families & students – more than just ship graveyard, an opportunity to honor an entire ecosystem that has grown up around it
- Some are concerned about any developments disrupting natural ecosystems anywhere along Mattawoman Creek
- Concerns on whether or not Indian Head had the infrastructure to support more development
- Most valued the idea that maintaining a clean, well-managed center was very important
- Some valued the idea of incorporating art into the building & site
- Community members wanted to make sure that the Piscataway tribe was involved in the planning
- No one felt that La Plata was an ideal location for the new center
- The team relayed this was just the beginning of the process & more community input meetings would follow as part of the NEPA process
- There was a request for future community meetings to be held in a variety of areas near the potential development zones, for example in Nanjemoy, Marbury, Bryans Road, etc.

4. ENVIRONMENTAL INVENTORY SUMMARY

The following are in the process of being evaluated and will continue to be evaluated in future phases of development for the new visitor center.

Wetlands and Waterways – all associated waterways will be determined as part of the evaluation of potential sites for the new center, including:

- Watersheds; Perennial streams & extensive tidal / non-tidal wetlands; Waterways associated with Mattawoman Creek; Stream tributaries, valleys and outlets with associated wetlands; including flooded stream valleys with associated Federal Emergency Management Agency (FEMA) 100-yr floodplain.
- Palustine, Estuarine, Emergent, Forested, Scrub / Shrub, Tidal and Non-tidal wetlands; settling ponds
- Shellfish harvesting waters and spawning habitats;
- Submerged aquatic vegetation (SAV)
- Sources include but are not limited to: USFWS National Wetlands Inventory Mapping, Maryland MERLIN MDE Wetlands and Streams layers, 1972 Tidal Wetland mapping, FEMA Floodplain mapping

Land: Forest, Critical Area, and Soils – all associated critical areas will be determined as part of the evaluation of potential sites for the new center, including:

- Critical Areas, Limited Development Area, Resource Conservation Areas; associated buffers such as steep slopes and/or hydric soils
- Forested Areas; Mesic Forest Area; Forest Interior Dwelling Species (FIDS) habitats; Nanjemoy Wildlife Area
- Sources include but are not limited to: Google earth imagery, USGS 7.5 minute topographic mapping, Maryland DNR Critical Area mapping, NRCS Web Soil Survey

Climate Resiliency – all associated flooding areas will be identified including:

- Climate Ready Action Boundaries (CRAB) and areas of extensive flooding and / or inundation
- Flooding along stream valleys in 100-year storms or higher, mapping by Hurricane Florence Models.
- Sources include but are not limited to: MDOT SHA Climate Change Vulnerability viewer

Historical and Cultural Resources

- Cultural and Historical Resources relating to Native American and colonial history (including the Mallows Bay Ghost Fleet)
- Maryland Historic Trust, Maryland Inventory of Historic Properties records & listed artifacts
- Significant historic and cultural resources related to the Naval Surface Center and Indian Head White Plains Railroad
- Sources include but are not limited to: Maryland MERLIN mapper

Sensitive Species and Habitat Considerations

- Sensitive species review areas; Waterfowl concentration areas; Estuarine species including the spiney dogfish

- Species that may be affected by the proposed construction including the northern long-eared bat, tricolored bat, and monarch butterfly, and if work occurs within the Potomac River, short nose and Atlantic sturgeon
- Sources include but are not limited to: Maryland MERLIN mapper, MDDNR Aquatic Resources Pre-Screening Tool, NOAA Essential Fish Habitat Mapper, NOAA ESA Critical Habitat Mapper

Environmental Justice

- Lead paint; Superfund proximity; Wastewater discharge; Ozone non-attainment area
- Sources include but are not limited to: USEPA EJScreen, version 2024. MD EJ Screening Tool Version 2.0

Hazardous Materials

- Any areas with listed hazardous material contamination in existing buildings or sites, including residual contamination that remain in the soils from previous land-use operations
- Future construction activity may require special handling, testing, or disposal requirements.
- Sources include but are not limited to: USAEPA EnviroMapper - RCRA / ICIS / TRI / Cleanup Sites

5. PRELIMINARY PROGRAM & CONCEPT DIAGRAMS

5a. Program Goals

As part of the vision and mission of the new visitor center, the following programmatic goals have been identified as part of this study. As a gateway between the Sanctuary and the Community, the new visitor center and site should:

1. Honor the history and heritage of MPNMS, serving as a teaching tool with exhibits inside and outside of the facility.
2. Serve as a community hub and tourism destination for residents of Charles County, Maryland, and beyond.
3. Honor partnerships with educational and community partner organizations.
4. Have a physical, visual, and symbolic connection to nature and the water.
5. Be fully accessible and physically and socially welcoming and inclusive to all people.
6. Offer flexibility and adaptability for a wide variety of indoor and outdoor programmatic functions, activities, and events; offerings interest visitors to return multiple times during the year.
7. Increase connectivity of existing and planned local points of interest.
8. Incorporate as many sustainable and climate-smart features as possible to negate carbon emissions and to adapt to the impacts of climate change.
9. Offer safety and security for all visitors and employees
10. Meet the MPNMS Management Plan Goals of Resource Protection; Recreation and Tourism; Education; Research, Science, and Technology; and Sanctuary Operation and Administration

5b. Building & Site Program

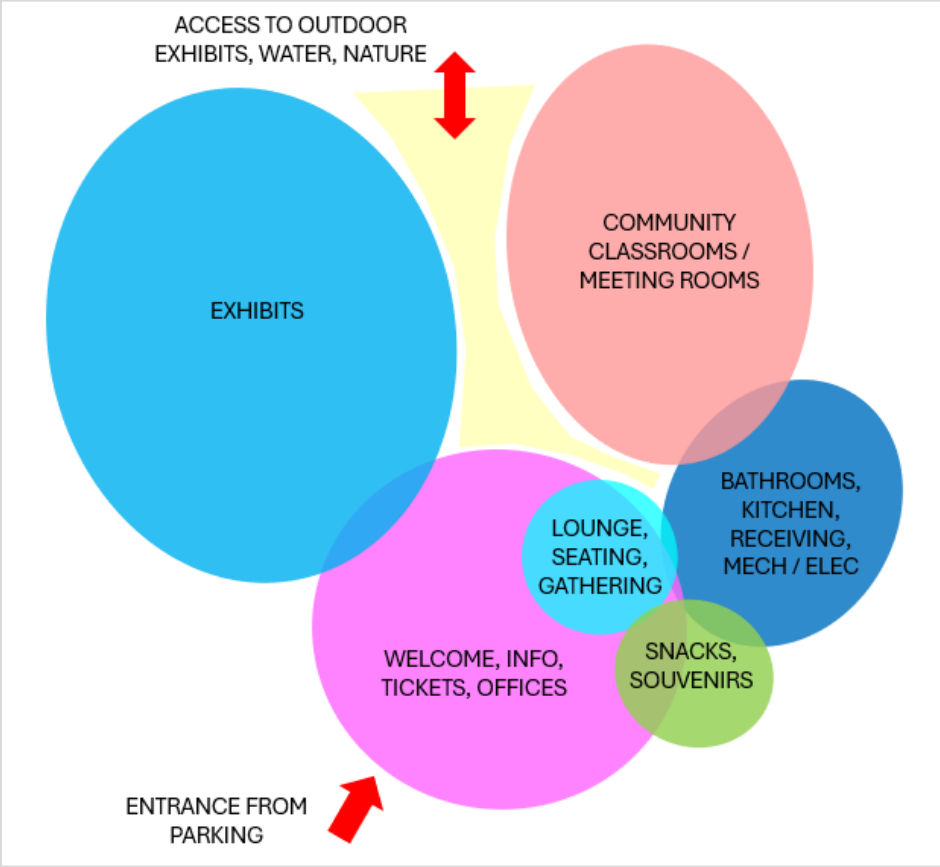
Overall, major programming components for the center will include interactive exhibits describing the sanctuary's historical, cultural, and natural resources including shipwrecks, indigenous peoples, wildlife, environmental resources, human uses, challenges, and solutions, that will serve as the gateway between the sanctuary and the public. As a result of County, community and stakeholder feedback gathered throughout the feasibility study process, the design team has assembled the following preliminary draft building and site program summary for the new visitor center. The new center physical building size estimate is approximately 20,000 gross square feet. However, this could change based on the final site selected due to the fact that other programmatic amenities may already be present near the final site location selected. For example, if the final site location is near an existing Children's Center, Community Center, or Boat Ramp, those spaces could be reduced or removed in the program below. These numbers could also change if an existing building is present on the final site selected that could be renovated to accommodate the program in a way that differs from the estimated sizes below. Further analysis of the program during the future NEPA process and feedback from additional community engagement meetings could also alter the programmatic needs.

	Size	Quantity	Total Size (Square Feet)	Notes
Administration				
Lobby	300	1	300	
Welcome Desk & Tickets	300	1	300	
Office - Director	250	1	250	
Office - Support	150	1	150	
Admin Work Room / Break Area / Storage	300	1	300	
Resources / Information Shelf / Library Area	300	1	300	

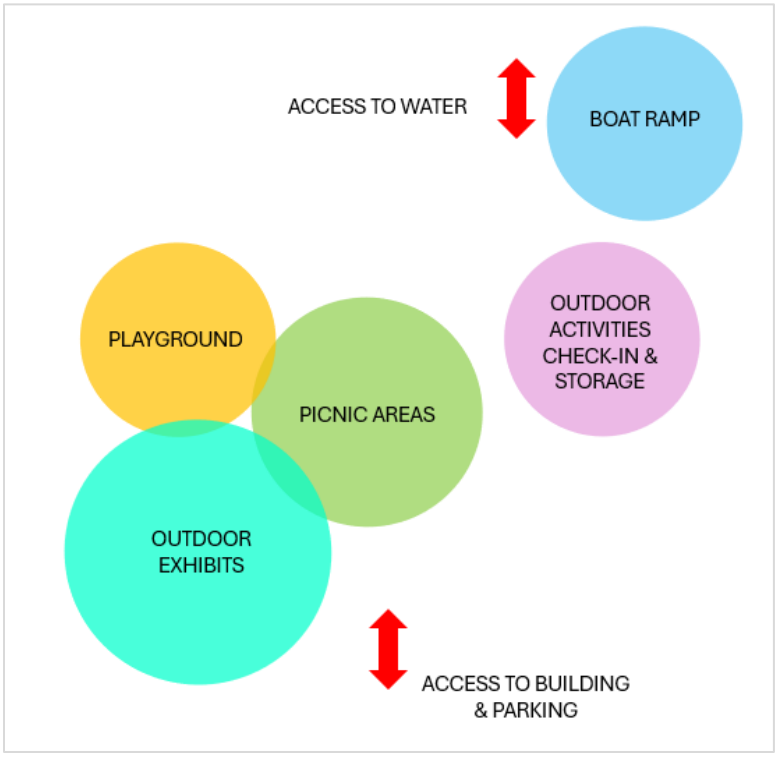
Small Souvenir / Snacks Area	400	1	400	
Seating Area / Lounge Space	500	1	500	
Warming Kitchen	400	1	400	
Admin Sub-Total	**2900**		**2900**	
Exhibition				
Interactive / Educational Exhibit Space	5000	1	5000	
Aquatic / Wildlife / Live Animals Exhibit Space	500	1	500	Fish & wild life tanks & viewing area
Multi-Media / Movie / Presentation Viewing Area	500	1	500	Small area w/ tiered seating, educational films
Exhibit Sub-Total	**6000**		**6000**	
Community & Education				
Children's Nature / Learning Center Classroom	800	1	800	
Art / Craft Room	800	1	800	
Community Classroom / Meeting Room 1	1100	1	1100	30 students; w/ operable partition(s)
Community Classroom / Meeting Room 2	1100	1	1100	30 students; w/ operable partition(s)
Community Classroom / Meeting Room 3	1100	1	1100	30 students; w/ operable partition(s)
Community Classroom / Meeting Room 4	1100	1	1100	30 students; w/ operable partition(s)
Community & Ed Sub-Total	**4900**		**6000**	
Utility				
Group Toilet Rooms	500	2	1000	
Family Toilet Rooms	100	2	200	
Shower & Changing Rooms	150	2	300	
Custodial Closet	50	1	50	
Mechanical Room	400	1	400	
Electrical Room	200	1	200	
Data Closet	100	1	100	
Utility Sub-Total	**1500**		**2250**	
Net Sub-Total			**17150**	**Square Feet**
Grossing Factor (hallways, etc.)	0.15		2572.5	
GRAND TOTAL			**19722.5**	**Gross Square Feet**
Potential Outdoor Program				
Outdoor Patio / Picnic Area	1200	1	1200	
Outdoor Activity Check-In Station	300	1	300	
Outdoor Activity Storage	500	1	500	
Outside Exhibit Space	2000	1	2000	
Outside Water Play / Water Exhibit Space	2000	1	2000	
Playground	2000	1	2000	
Boat Ramp	400	1	400	
	8400		**8400**	**Gross Square Feet**

Additional outdoor areas to consider: Parking, Hiking Trails, Boardwalks, Additional Outdoor Seating, Map / Directory / Signage, Bike Racks & Bike Repair Station, Septic Field, Other Utility Access

Building Concept Diagram



Site Concept Diagram



6. PRELIMINARY PROJECT COST ESTIMATE

The following Rough Order of Magnitude (ROM) cost estimate, based on a 20,000 GSF visitor center that is newly constructed. These numbers could change if the final site selected has an existing building that could be adaptively reused. The numbers below include building and site costs, general conditions, bonds and insurance, design & construction contingency, general contractor overhead and profit, and escalation. This estimate does not include other costs that need to be determined at a later date, such as NEPA costs, furniture, equipment, unique green building design elements like solar panels or wind turbines, architectural or engineering design costs, exhibit design, archeology, marine / coastal design engineering, geotechnical engineering and topographical survey, laser scanning, traffic analysis, permitting fees, etc.

The project cost estimate range was determined to be approximately $14.4M - $17.3M. The range in cost is dependent on several factors that vary for different sites, including the amount of infrastructure, utility, site, permitting, parking, waterfront, and landscape improvements that may be needed.

7. ECONOMIC ANALYSIS

Introduction

BAE Urban Economics, in conjunction with Whitman, Requardt & Associates and Michael Graves Architecture, prepared the economics portions of the Feasibility Study for the Mallows Bay Potomac River National Marine Sanctuary Visitors Center, included in this report. This includes visitor estimates and projections for the future visitors center, a proximity analysis of other sites and programs in support of the Mallows Bay Potomac River National Marine Sanctuary and visitor center, as well as the sanctuary's Management Plan, and an analysis of the local economic impact of the visitor center. These components are provided below in this order.

7a. VISITOR ESTIMATES & PROJECTIONS

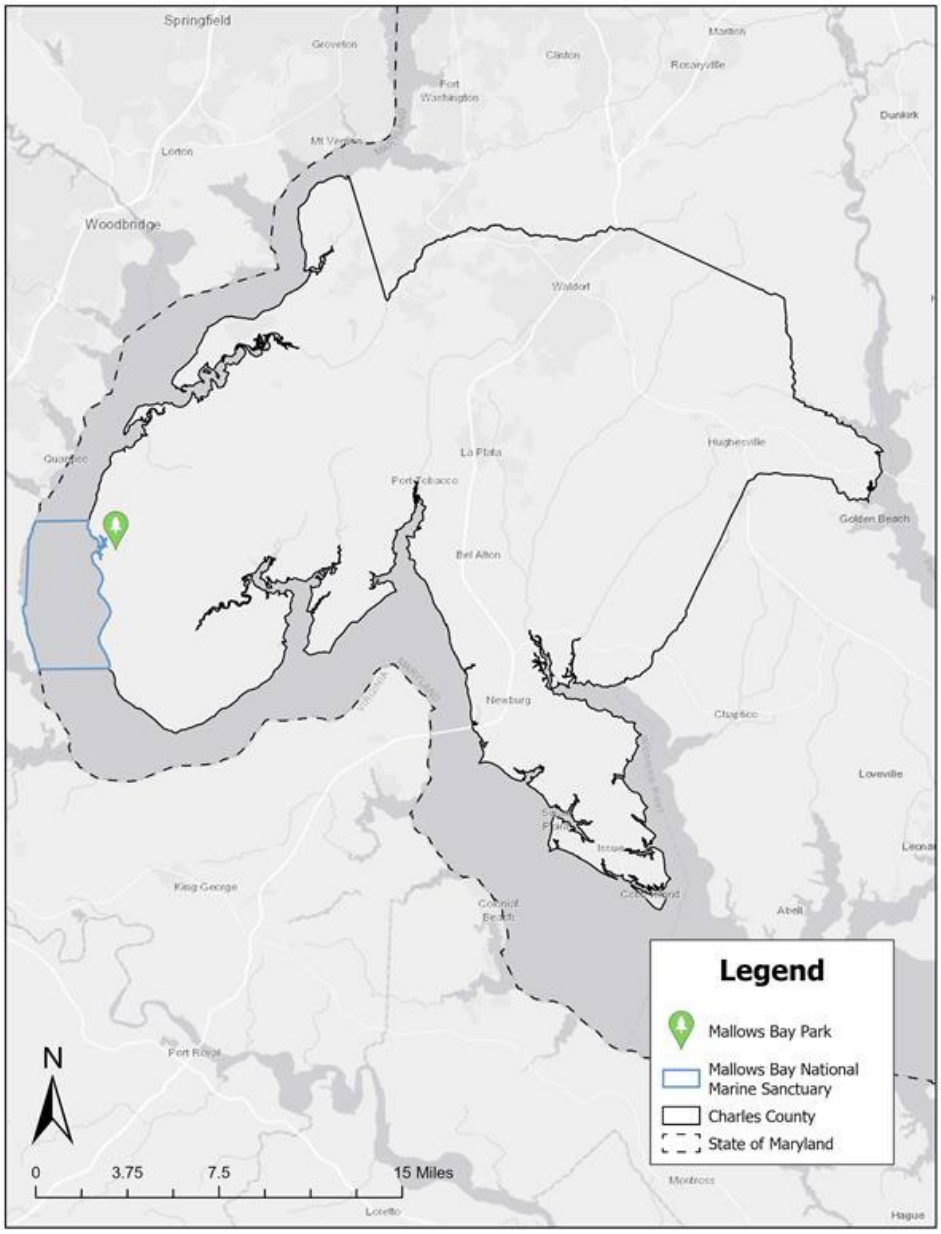
In this section BAE assesses the effect of a future visitor center on the number of visitors to the Mallows Bay-Potomac River National Marine Sanctuary. This includes a summary review of certain demographic information about Charles County, where the sanctuary is located, as well as the Washington-Arlington-Alexandria Metropolitan Statistical Area (MSA), the origin of most of the sanctuary's current visitors. It is important to note that Charles County itself is technically part of the Washington-Arlington-Alexandria MSA, though located in the far eastern portion of it, some distance away in miles and travel time from the far northern and western parts of the MSA. Following the review of the market area demographics is a compilation of visitor data available from Charles County and other sources. The data available is quite limited and does not include an extensive amount of information about the geographic origin of Mallows Bay attendees. However, the County was able to provide the geographic origin of visitors at Mallows Bay Park for a weekend in August. With that information, together with Atlantic Kayak's customer addresses from records of Mallows Bay "Ghost Fleet" kayak tours, BAE can make some assumptions about the geographic origin of visitors.

Also included in this section is a brief summary of the national trends of three types of activities that are popular among visitors to Mallows Bay Park and the sanctuary: kayaking, birdwatching, and heritage tourism. The popularity of these three activities is a good predictor of increasing visitor counts even without a new visitor center. Also in this section is a case study review of visitors at sites in Maryland and elsewhere in the nation that are similar in size, activities or offerings, specifically two other national marine sanctuaries, as well as a closer look at visitor information at nearby Smallwood State Park. Finally, the last part of the section includes projected visitor numbers with the new visitor center.

Mallows Bay-Potomac River National Marine Sanctuary Location

The National Oceanic and Atmospheric Administration (NOAA) designated Mallows Bay-Potomac River, located in Charles County, Maryland as the first national marine sanctuary in more than 20 years. (See Figure 7 below.) It is a sanctuary to protect what is known as the Ghost Fleet, which includes approximately 100 World War I-era ships that were ready to cross the Atlantic just as the war ended. After metal was salvaged from the ships they ended up in Mallows Bay on the Potomac River.

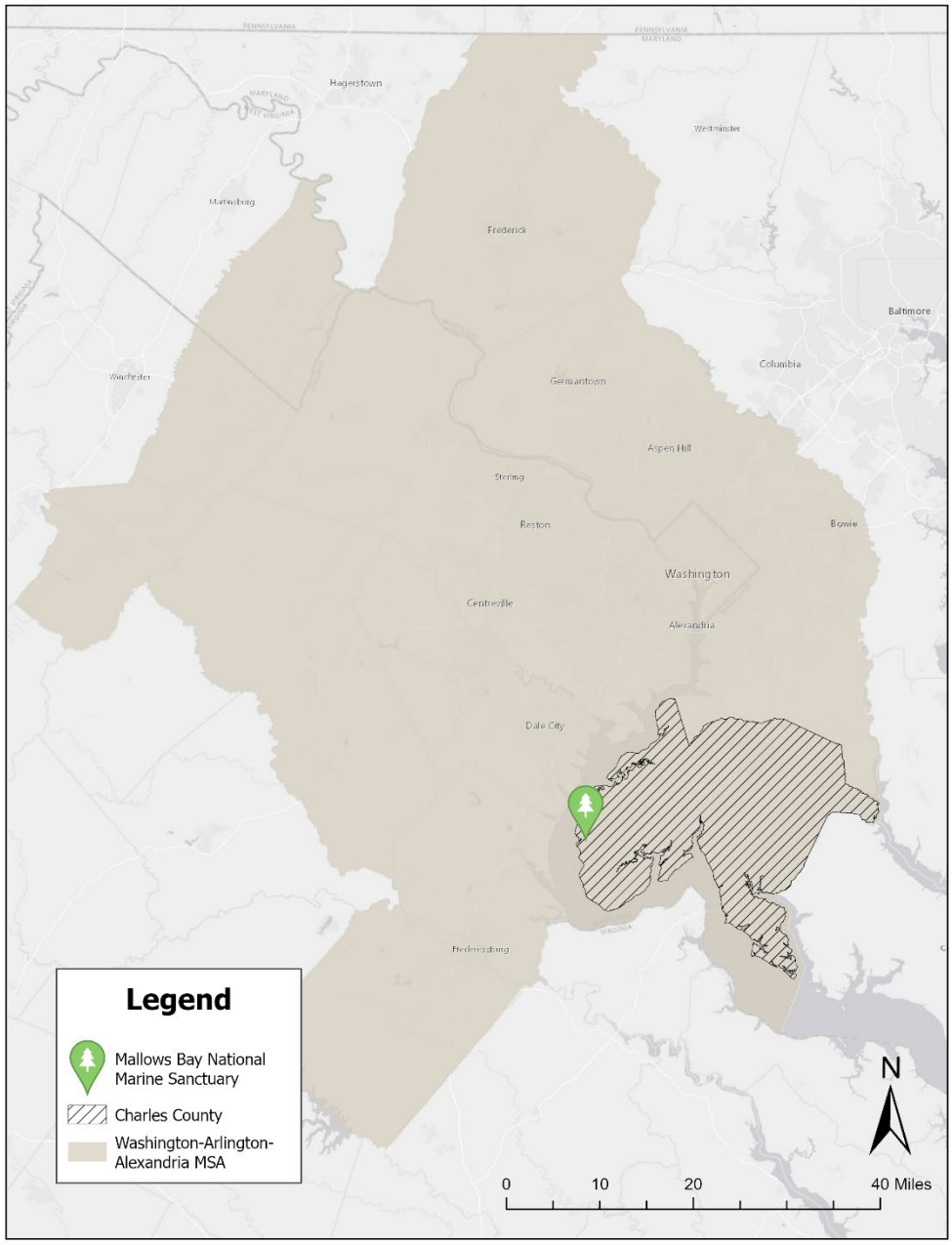
Figure 1: Map of Charles County & Mallows Bay National Marine Sanctuary



Sources: Maryland Planning Website; Esri; BAE, 2024.

Charles County is also part of the Washington-Arlington-Alexandria MSA as shown in Figure 8. As discussed later in this section, most of the visitors to the sanctuary are from this MSA or the larger Washington DC-Baltimore Consolidated Statistical Area (CSA). Since it is likely that visitors will continue to be mostly from this MSA, even after the new visitor center is complete, it is important to review the demographics of both areas to understand the primary market area for the Mallows Bay-Potomac River National Marine Sanctuary.

Figure 2: Map of Washington-Arlington-Alexandria MSA



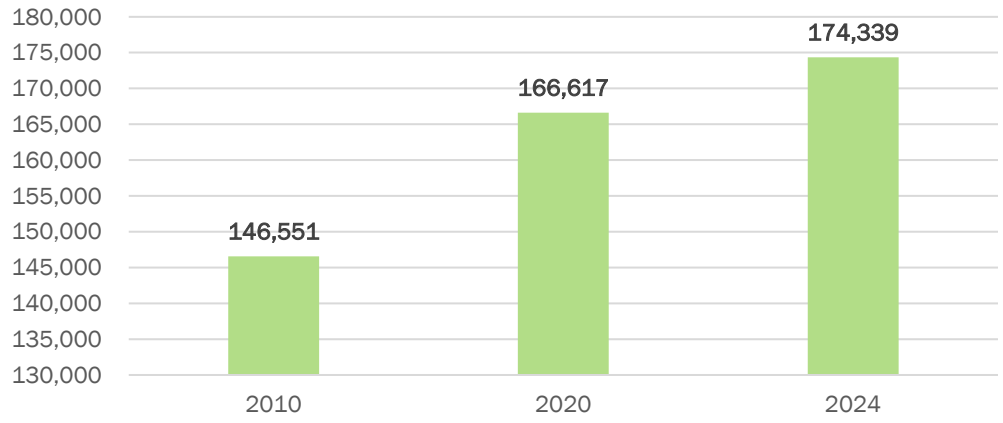
Sources: Maryland Planning Website; Esri; BAE, 2024.

Demographic Trends: Charles County and Washington-Arlington-Alexandria MSA

Population and Household Trends

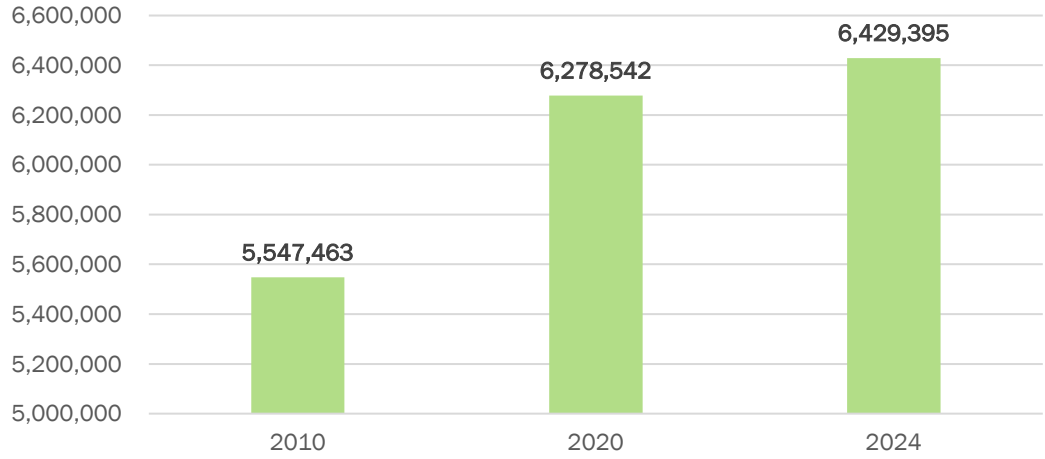
From 2010 to 2024, both Charles County and the Washington-Arlington-Alexandria MSA experienced moderate population growth. Charles County's population increased 4.6 percent, while the Washington-Arlington-Alexandria MSA saw a 2.4 percent rise, as indicated in Figure 9 and Figure 10 below. Household population followed a similar trend, with near identical percentage increases over the four-year period. Coinciding with these trends, the number of households increased consistently. Despite these changes, however, the average household sizes in both study areas remained largely unchanged.

Figure 3: Total Population, Charles County, 2010-2024



Sources: 2010 & 2020 Decennial Census Survey; Esri 2024; BAE, 2024.

Figure 4: Total Population, Washington-Arlington-Alexandria MSA, 2010-2024

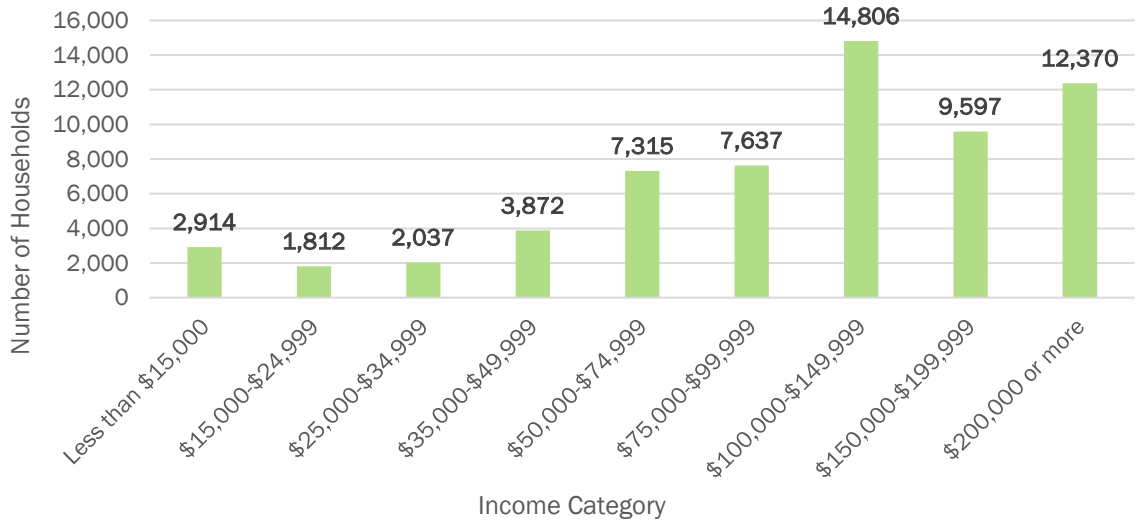


Sources: 2010 & 2020 Decennial Census Survey; Esri 2024; BAE, 2024.

Household Income

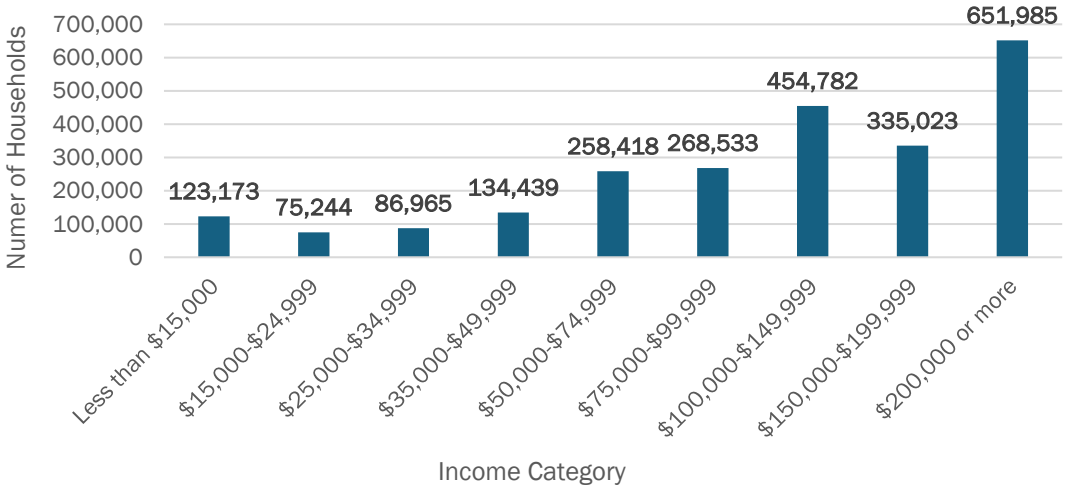
In 2024, the household income distribution in Charles County depicted a significant portion of households falling within the higher income brackets, as shown in Figure 11. Over a quarter of the population, 33.5 percent, earn between $100,000 and $149,999, and 24.6 percent earn between $150,000 and $199,999. The county's median household income is approximately $113,000, indicating a generally affluent population, and the per capita income stands at $51,000. In contrast, the Washington-Arlington-Alexandria MSA has a broader range of incomes, with a notable presence in both lower- and upper-income categories, as shown in Figure 12. While 27.3 percent of households earn over $200,000, 5.2 percent earn less than $15,000, highlighting the region's economic diversity. The median household income in the MSA is higher than in Charles County, at around $122,000, reflecting its status as a major metropolitan area with a wide range of economic opportunities. Additionally, the per capita income in the Washington-Arlington-Alexandria MSA lies at around $63,000.

Figure 5: Household Income Distribution, Charles County, 2024



Sources: Esri Business Analyst 2024; BAE, 2024.

Figure 6: Household Income, Washington-Arlington-Alexandria MSA, 2024

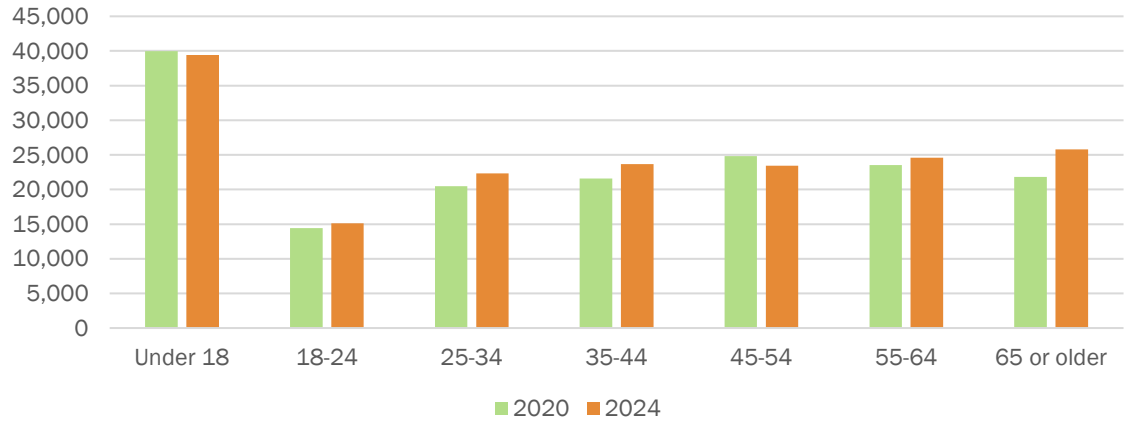


Sources: Esri Business Analyst 2024; BAE, 2024.

Age Distribution

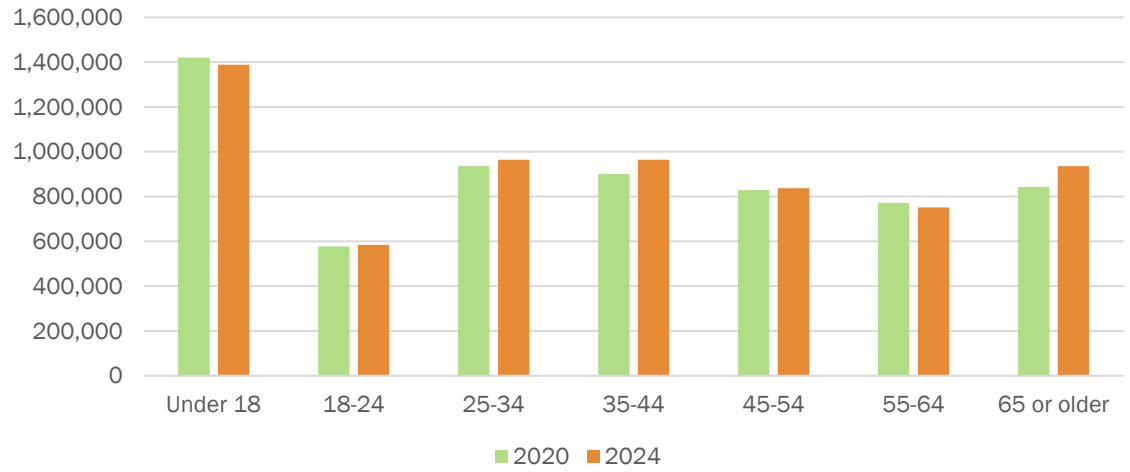
The age distribution data between 2020 and 2024 reveal a gradual aging trend in both Charles County and the Washington-Arlington-Alexandria MSA, as shown in Figure 13. In Charles County, the population of residents aged 65 or older increased by 18%, while younger aged groups saw slight declines, following resident aging trends over the four years. This shift over the years contributed to an increase in the median age from 38.8 years to 39.4 years. The Washington-Arlington-Alexandria MSA followed similar trends, with decreasing younger populations, and an increase in the number of people aged 65 or older (Figure 14). The median age in the MSA changed insignificantly from 37.2 years to 37.9 years. In Charles County the large number of people under the age of 18, and a high percentage of middle-aged residents indicates a high proportion of families within the County. This trend tracks across the Washington-Arlington-Alexandria MSA as well.

Figure 7: Age Distribution, Charles County, 2020-2024



Sources: 2020 Decennial Census Survey; Esri 2024; BAE, 2024.

Figure 8: Age Distribution, Washington-Arlington-Alexandria MSA, 2020-2024



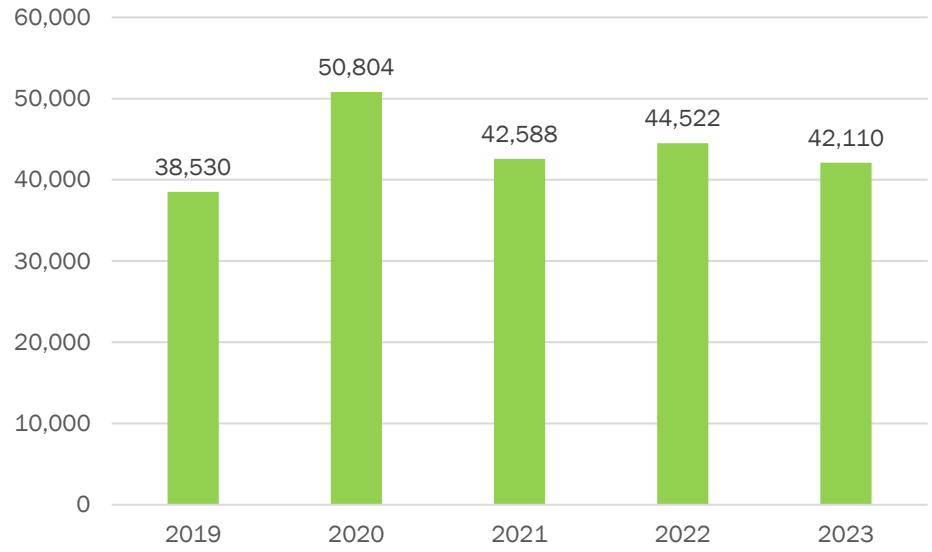
Sources: 2020 Decennial Census Survey; Esri 2024; BAE, 2024.

In summary, both Charles County and the MSA have shown moderate growth, have relatively high median household incomes, especially the MSA, and age distributions that demonstrate a high proportion of families and mix of age cohorts. These characteristics are good indicators for continued strong market for visitors from the immediate and broader region to Mallows Bay-Potomac River National Marine Sanctuary going forward.

Current Visitor Data for Mallows Bay Park

From data provided by Charles County Department of Recreation, Parks, and Tourism, the level of visitation to Mallows Bay Park and the sanctuary have been stable to moderately increasing since 2019 as shown in Figure 15. This data was estimated from vehicle counts entering Mallows Bay Park and assume that there were two occupants per vehicle, as suggested by Charles County staff. The one exception to that trend was a surge of attendance in 2020, up to more than 50,000 for the year, during the height of the pandemic. Beginning in late spring that year, after people had been in lockdown for two or more months, many parks in the United States experienced high demand. At that time, authorities encouraged people to recreate outside where they were much less likely to be infected with the COVID-19 virus. Since 2020, from 2021-2023, annual visitor numbers ranged from just over 42,000 to about 44,500.

Figure 9: Estimated Visitor Count, Mallows Bay Park, 2019-2023

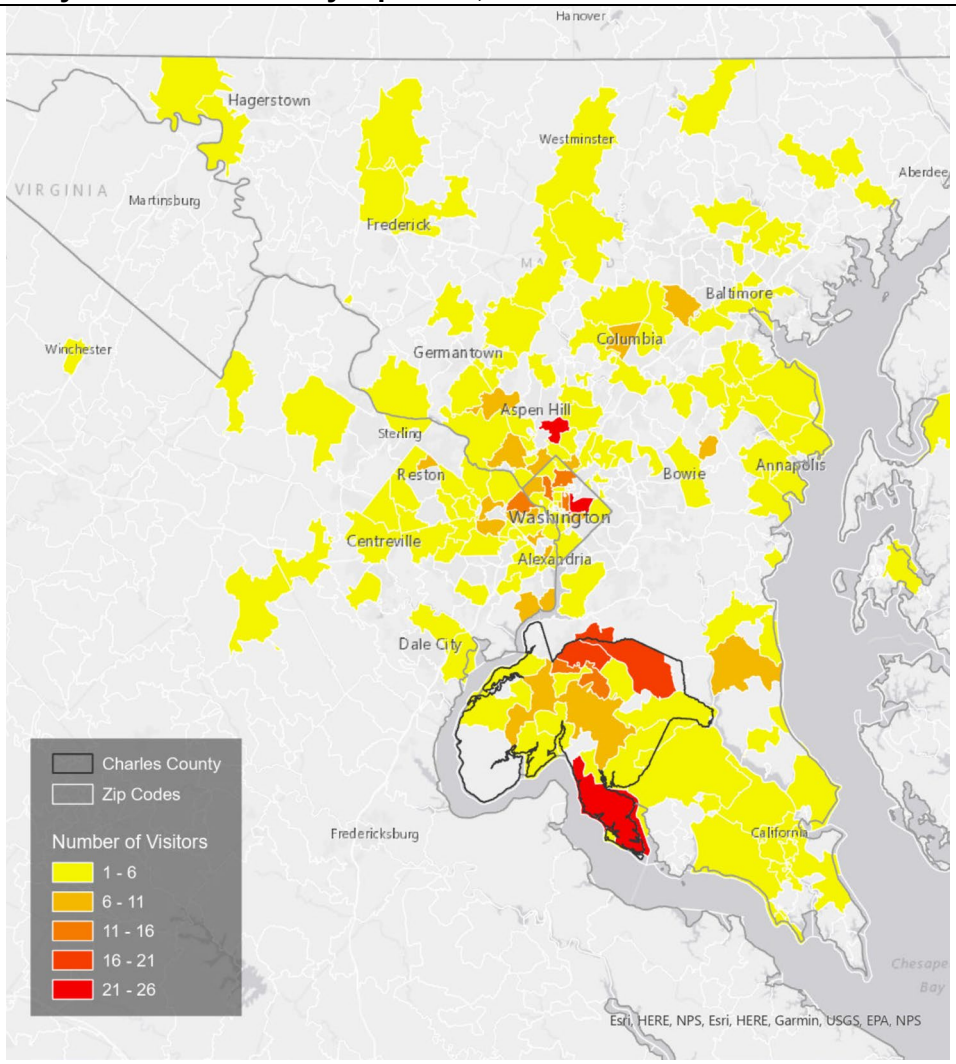


Sources: Charles County Department of Recreation, Parks, and Tourism, 2024; BAE, 2024.
Note: These estimates are made from vehicle count numbers, assuming an average of 2 persons per vehicle as suggested by Charles County staff.

Across a typical year, the peak months for visitors to Mallows Bay Park are June, July, August, and September, though that can vary depending on the weather. The park is consistently busier on weekends. And weekends are also when most of the kayak tours occur. Most of the kayak tours of the sanctuary are led by Atlantic Kayak, which is based in nearby Indian Head. REI also sponsors kayak tours of the sanctuary. In 2024 REI led 14 such tours.

Atlantic Kayak also provided some key data about the geographic origin of kayak tour participants in 2023 and part of 2024 that demonstrates the appeal of the Mallows Bay Potomac River National Marine Sanctuary and the opportunity to kayak in the sanctuary amidst the sunken ships. In a period of nineteen months 829 people participated in Atlantic Kayak's "Ghost Fleet" kayak tours of Mallows Bay, 530 in 2023 and 299 through the end of July 2024 (approximately). While most of the tour participants were from Washington DC, Maryland, or Virginia in the metro area, as shown in Figure 16, others came from a variety of other states and one province of Canada, Saskatchewan. The kayakers from outside the metro region came from 14 states, with the largest numbers of those people from Pennsylvania (12), California (5), Michigan (5), and Delaware (4).

Figure 10: Atlantic Kayak Tour Visitors By Zip Code, 2023 and 2024

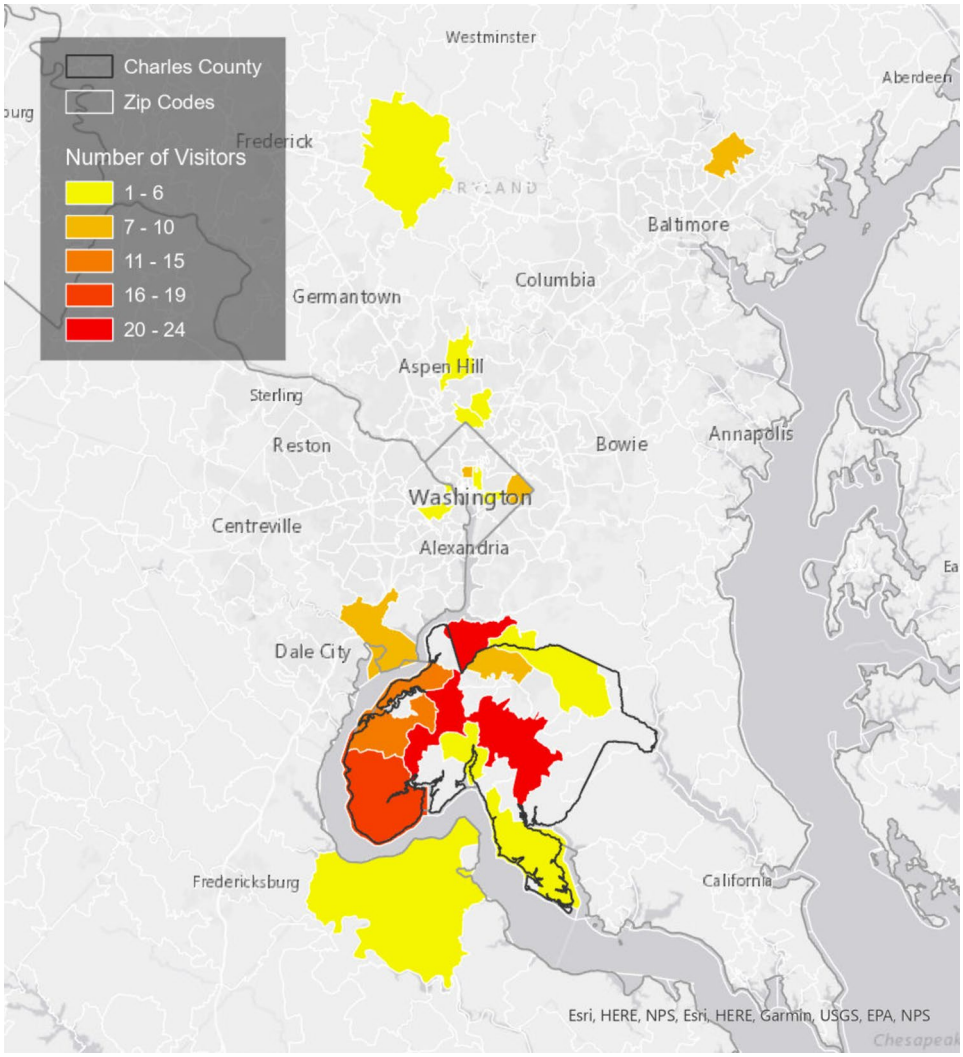


Source: Atlantic Kayak, BAE, 2024.
Note: Figure 16 does not show all of the zip codes kayak tour participants from January 2023 to July 2024. While a majority, 94 percent, of visitors came from MD, VA, and DC, Atlantic Kayak also received visitors from Canada and the following US states, AZ, CA, CT, DE, FL, MA, MI, NC, NH, NM, NY, PA, TN, TX, UT, and WV.

One last source of information about visitors to Mallows Bay Park is a special count taken one weekend in August, specifically Saturday, August 24 and Sunday, August 25. There was good weather both days, sunny and clear. A total of 149 people entered the park that weekend, 64 on Saturday and 85 on Sunday. Most of the people who arrived those days kayaked, fished, and/or picnicked. As shown in Figure 17 from zip codes collected those days, most people were from Charles County. Beyond Charles County there were a few larger groups from Washington DC, Arlington, Virginia, the Silver Spring area of Montgomery County, and just across the line from Charles County in Prince George's County. There were also smaller groups from Reston, Virginia; Aspen Hill, Maryland and Calvert County in Southern Maryland.

It is clear that the largest number of users of the park that weekend were from Charles County and the other biggest blocks of users are from Washington DC and its suburbs in Maryland and Virginia.

Figure 11: Mallows Bay Park Interception Survey Visitors By Zip Code, August 24 and 25, 2024



Source: Mallows Bay Park, BAE, 2024

Activity Trends

It is important to note that some of the primary activities for visitors to the Mallows Bay Potomac River National Marine Sanctuary are trending upward in popularity. This bodes well for increased visitation, especially after a new visitor center becomes a reality. Below are a few details of the depth of popularity of three such activities: kayaking, birding, and heritage tourism.

Kayaking

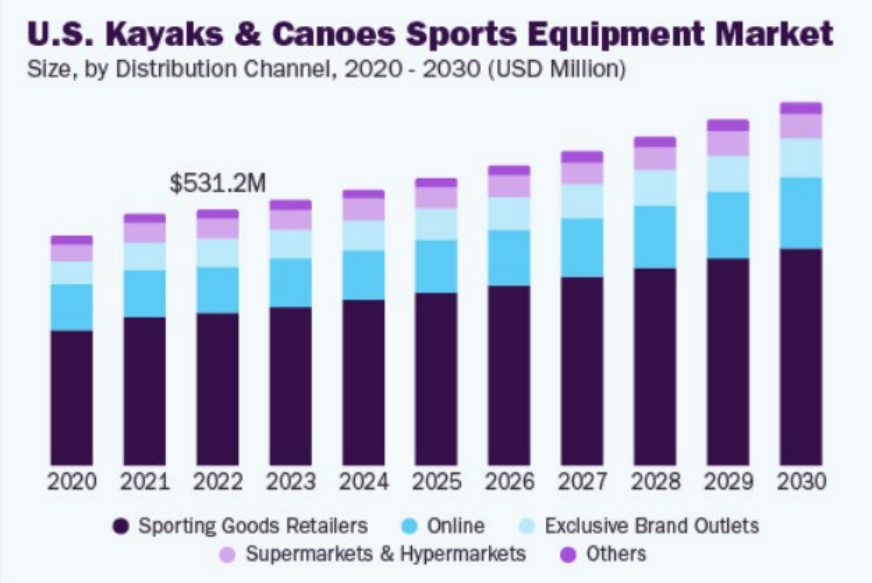
Kayaking is perhaps the most popular activity at Mallows Bay Potomac River National Marine Sanctuary. Kayakers enjoy paddling at the sanctuary because they appreciate being out on open water, but also because with kayaks they are able to get much closer to the shipwrecks to see the structures and the ecosystems that have developed on the ruins. The popularity of the kayak tours at Mallows Bay is a clear indication of the popularity of kayaking in the metro area.

Nationally, the kayak industry has seen a significant surge in popularity over the past few decades. This growth can be attributed to various factors, including increased interest in outdoor activities, improvements in kayak technology, and rising disposable income. Historical data suggests a steady increase in kayak sales and

market revenue over the past two decades. This growth has been fueled by both the popularity of recreational kayaking and the expansion of specialized segments like whitewater kayaking and fishing kayaks. Participation rates in kayaking have been on the rise, especially among younger demographics. This trend is likely driven by a desire for outdoor adventures and a growing awareness of the benefits of water sports for physical and mental health. Participation rates may vary across different regions, influenced by factors such as geographical location, climate, and cultural preferences. According to Statista, "almost 20 million Americans went kayaking in 2023, and nearly 15 million of those people participated in recreational kayaking. This continues a trend of increasing popularity since 2010"[1]

The sales of kayaks and canoes reflect this increase in the popularity of this activity, as shown in Figure 18. A market study by Grand View Research finds that the "U.S. kayaks and canoes sports equipment market size was estimated at $551.7 million in 2023 and is expected to grow at a compound annual growth rate of 4.7 percent from 2024 to 2030. The market is primarily driven by increasing interest in water sports, rising awareness of health benefits associated with kayaking and canoeing, technological advancements in equipment, availability of diverse product ranges, and effective promotion strategies by outdoor retailers."[2]

Figure 12: U.S. Kayak & Canoe Sports Equipment Market



Source: Grand View Research, BAE, 2024.

Birding

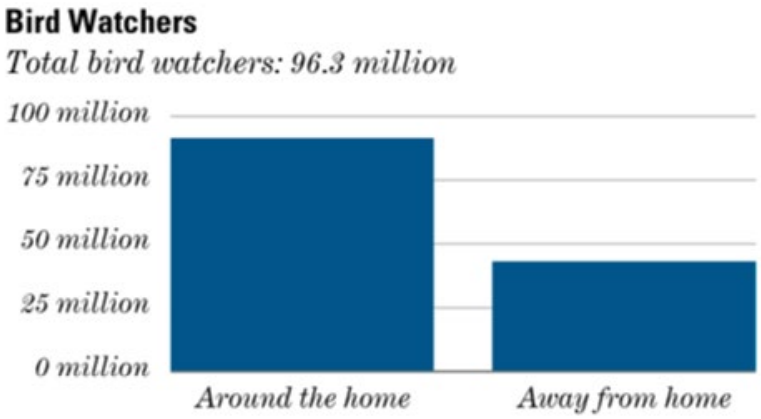
Located along the Potomac River in Southern Maryland, Mallows Bay offers a diverse landscape that attracts a wide variety of bird species. Its deciduous and mixed forests provide a variety of nesting and foraging opportunities for birds. Marshes, swamps, and mudflats offer specialized habitats for waterfowl, herons, and other wetland birds. The Potomac River and its tributaries provide opportunities for waterbirds, such as ducks, geese, and gulls. The region provides a rich habitat for both migratory and resident birds, offering unique birding opportunities and experiences.

Birding, or birdwatching, has seen a resurgence in popularity in recent years, becoming more than just a hobby for many. The number of birdwatchers worldwide has increased significantly in the past decade, driven by factors such as increased environmental awareness and the accessibility of birding resources. While traditionally associated with older generations, birding is now attracting a wider range of age groups, including young adults and families. The popularity of urban birding has grown, as people discover the diversity of birdlife in cities and parks.

[1] https://www.statista.com/statistics/191249/participants-in-kayaking-in-the-us-since-2006/.
[2] https://www.grandviewresearch.com/industry-analysis/canoe-kayak-market-report

As shown in Figure 19 and described in the U.S. Fish & Wildlife Service (USFWS) report titled "2022 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation," the agency reported that "of all of the wildlife in the United States, birds were the greatest focus of wildlife watchers interviewed in 2022. Approximately 96.3 million people observed birds around the home and on trips in 2022. A large majority, 95 percent (91.1 million), observed wild birds around the home, while 44 percent, 42.6 million, took trips away from home to observe wild birds. Participants averaged 78 days of birding in 2022, with 67 days for around-the-home birders. Away-from home birders averaged 34 days."[3]

Figure 13: Bird Watchers at Home & Away from Home



Source: U.S. Fish and Wildlife Service, 2022.

The increasing popularity of birding will have a positive impact on both the environment and economy of areas like Mallows Bay.

Heritage Tourism

A segment of the tourism industry that has been gaining in popularity is Heritage Tourism. This growing segment of the tourism industry involves visiting and experiencing places of historical, cultural, or natural significance. It goes beyond sightseeing and attempts at connecting with the past, understanding different cultures, and contributing to the preservation of heritage sites.

The "Ghost Fleet" of Mallows Bay, is a good destination for visitors interested in the history of American industry, shipbuilding, and World War I. In addition, the maritime industry of the Potomac River was a vital waterway for centuries and has a storied history across the centuries.

Mallows Bay and its surrounding area enjoys a rich African American legacy. The region has a long history of African American communities with many African Americans, both enslaved and free, working in the shipbuilding industry. The Underground Railroad runs through the county, one possible stop being St. Ignatius Catholic Church, Chapel Point, about 30 minutes from Mallows Bay.[4].

The area surrounding Mallows Bay also has a long history of Native American habitation, specifically the Piscataway Conoy Tribe, which was the primary indigenous people inhabiting the land around the Chesapeake Bay and Potomac River. Mallows Bay and other nearby sites, such as Liverpool Point, remain culturally significant to the history and heritage of the Piscataway.

For visitors interested in the American Civil War, General Joseph Hooker led a significant Union military

[3] U.S. Fish & Wildlife Service report, 2022 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, url: https://www.fws.gov/sites/default/files/documents/Final_2022-National-Survey_101223-accessible-single-page.pdf.
[4] https://apps.mht.maryland.gov/medusa/PDF/Charles/CH-7A.pdf.

presence in the region around Mallows Bay from late 1861 to early 1862 to keep Virginia's shoreline free of Confederate batteries and to counter advancement of Confederates across the Potomac River into Maryland. His 16,000 Union forces established 26 camps stretching from Indian Head to Maryland Point.

As shown in Figure 20, the U.S. heritage tourism market size was valued at $118.3 billion in 2020 and $119.7 billion in 2021 and is expected to increase at a compound annual growth rate of 3.5 percent from 2022 to 2030. The growth is driven by the increasing perception of the importance of culture in tourism. "Travelers are increasingly seeking out tangible and intangible cultures while on vacation. These attractions provide distinctive material, spiritual, and intellectual information about the region. Additionally, governments across the globe are taking major initiatives to promote the regional heritage travel market and this is expected to have a profound impact on the global cultural tourism market growth."[5]

Figure 14: U.S. Heritage Tourism Market 2020-2030

Source: Grand View Research, 2020.

Case Studies

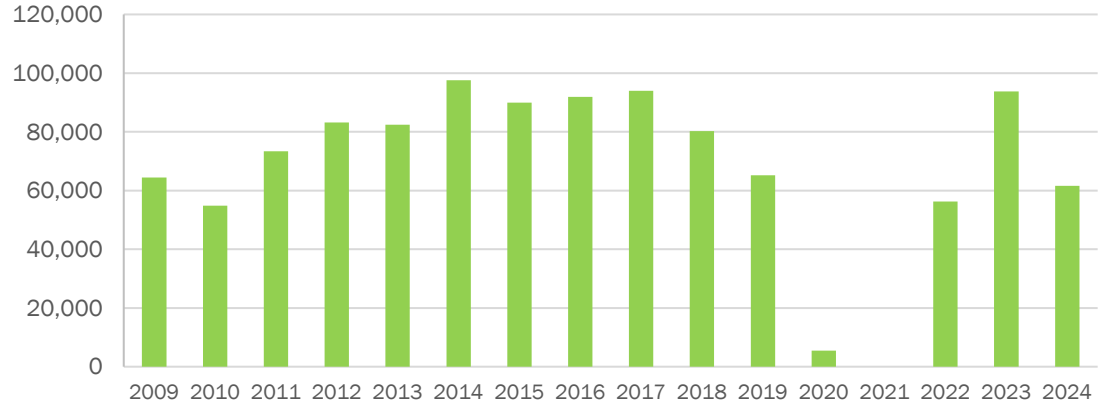
Another way to assess visitor potential is to look at visitor numbers and trends is by reviewing statistics from other national marine sanctuaries and relevant parks or recreation sites. Below are brief descriptions of the operations and visitor trends of four different national marine sanctuaries, Thunder Bay in Alpena, Michigan, Olympic Coast in Port Angeles, Washington, Monterey Bay in Santa Cruz, California, and Papahanaumokuakea Marine National Monument in Hawaii, as well as the Smallwood State Park, which is near the Mallows Bay Park and on the Potomac River shoreline. Smallwood State Park hosts several of the same activities as Mallows Bay Park—kayaking, boating, and birdwatching among others--and has substantial visitor counts.

[5] https://www.grandviewresearch.com/industry-analysis/heritage-tourism-market-report.

Figure 15: Great Lakes Maritime Heritage Center

Thunder Bay National Marine Sanctuary, as shown in Figure 21 above, is located in Northeast Michigan, in Lake Huron and near Alpena, Michigan. NOAA designated Thunder Bay National Marine Sanctuary on October 7, 2000. It was the nation's first national marine sanctuary. Thunder Bay has a large visitor center in downtown Alpena with 12,000 square feet of exhibit space. Activities for visitors to the sanctuary include kayaking, canoeing, paddleboarding, diving, snorkeling, fishing and touring on a glass bottom boat through an outside vendor. It is open year around but its busiest time is between May 1 and September 30. Thunder Bay has had as many as 20,000 people visit per month in the summer months. Except for the most critical period of COVID-19, from March 2020 through 2021 when the visitor center was closed, annual attendance in recent years, as shown in Figure 22, has ranged from about 60,000 to just over 90,000.

Figure 16: Number of Visitors, Thunder Bay National Marine Sanctuary, 2009 to 2024



Source: Thunder Bay Nation Marine Sanctuary, BAE, 2024

Unlike the Mallows Bay Potomac River National Marine Sanctuary, Thunder Bay is located in a remote, mostly rural area, a long way from a major population center. It is located four hours from Detroit, for example.

Accordingly, most people drive to Thunder Bay, primarily from other parts of Michigan and surrounding states. Many visitors stay overnight in the town's one hotel, Holiday Inn Express or in area Airbnb's or VRBO's for short term stays. Demand is strong for hotel rooms and other accommodations in the area. A new Hampton Inn is currently under construction in Alpena.

Olympic Coast National Marine Sanctuary

Port Angeles, Washington

Figure 17: Olympic Coast Discovery Center

The Olympic Coast National Marine Sanctuary is located along the Pacific coast of Washington State, on the Olympic Peninsula. It stretches approximately 135 miles from north of Cape Flattery to south of Copalis Beach. This marine sanctuary encompasses a vast area of ocean, including the continental shelf and several submarine canyons. The sanctuary is home to a variety of marine mammals, seabirds, fish, and invertebrates, as well as thriving kelp forests. Activities offered include wildlife watching, diving, snorkeling, kayaking, boating, hiking, as well as educational programs to participate in guided tours, workshops, and lectures. The Olympic Coast Discovery Center, which serves as the sanctuary's visitor center at this time, shown above, is only open 21 weeks a year. The center had 13,613 visitors in 2023 and 7,885 in the first thirteen weeks of 2024.

The manager of the Olympic Coast Discovery Center, contacted for this study, indicated that while staff had not conducted an intercept study to find out the geographic origin of visitors to the center, anecdotally she believed that most visitors to the center are from the state of Washington, but California, Oregon, and Arizona are also highly represented in the count. She reported that the center also received some visitors from several other states across the country, as well as some international visitors. In recent years, the center has had visitors from Australia, New Zealand, Germany, and China to name a few. The center is located in Port Angeles, which is a little more than two hours from the Seattle metro area, but since the Olympic Coast is a popular vacation spot for people from around the country, undoubtedly the mix of visitors that are local versus regional and beyond local and regional, likely looks somewhat different than the same comparison for Mallows Bay.

In 2023 NOAA announced that it will provide $3 million from the Inflation Reduction Act for the construction of a new visitor center for the Olympic Coast National Marine Sanctuary. An artist rendering is shown in Figure 24. The agency "intends to collaborate with the Feiro Marine Life Center to make the visitor center a prominent feature of the new Port Angeles Waterfront Center campus. The campus is home to the recently-constructed

Field Hall performing arts center and is where the Elwha Klallam Tribe plans to develop a cultural center."[6]

Figure 18: Artist Rendering of a New Visitor Center in Port Angeles, Washington, for Olympic Coast National Marine Sanctuary

Monterey Bay National Marine Sanctuary - Sanctuary Exploration Center

Santa Cruz, California

Figure 19: Monterey Bay National Marine Sanctuary Exploration Center

[6] Olympic Coast
National Marine Sanctuary (https://olympiccoast.noaa.gov/news/2023/noaa-announces-funding-to-support-construction-of-new-discovery-center.html).

The Monterey Bay National Marine Sanctuary (MBNMS) is located offshore of California's Central Coast from Marin to Cambria. It encompasses a shoreline length of 276 miles and 6,094 statute miles of ocean, extending an average distance of 30 miles from shore. At its deepest point, this national marine sanctuary reaches 12,743 feet (more than two miles). It is one of the nation's largest national sanctuaries.

The sanctuary has extensive kelp forests and North America's largest underwater canyons. Its diverse marine ecosystem harbors a wide variety of marine life including 36 species of marine mammals, more than 180 species of seabirds and shorebirds, and 525 species of fishes. It encompasses a vast area of ocean, including the continental shelf and several submarine canyons. Activities offered include fishing, both commercial and recreational, as well as diving, kayaking, tide pooling, boating, surfing, and whale watching.

MBNMS has two visitors centers, the Sanctuary Exploration Center in Santa Cruz and the Coastal Discovery Center in San Simeon. Both offer interactive exhibits and programs about the sanctuary. The Sanctuary Exploration Center, contacted for this study, has a program most like what is contemplated for the Mallows Bay National Marine Sanctuary. The manager of the Sanctuary Exploration Center indicated that partly because of its location near Santa Cruz beach it has quite strong visitor numbers. After being closed from March 2020 to July 2022 due to the COVID-19 pandemic, in 2023 there were 33,946 visitors to this center. The manager reported in early September that they expected 35,000 – 36,000 by the end of September 2024. (The Federal Fiscal Year is October – September.) While those numbers are down from 2019 visitor numbers, 51,277, the manager thinks the number of Visitors will likely continue to gradually increase. The visitors include public guests, students on field trips, and attendees to private events. The biggest months for visitation are May – August, with one peak week between Christmas and New Year's Day

According to a survey conducted by the Sanctuary Exploration Center, 70 percent of the visitors are from outside Santa Cruz County, and 30 percent are in-county visitors. The manager indicated that she believes that the geographic origin mix of current visitors is similar to what it was prior to the pandemic . It should be noted that the Sanctuary Exploration Center is located adjacent to Santa Cruz Wharf and the Beach Boardwalk. Of the 70 percent of visitors from outside Santa Cruz, a large percentage are from the densely populated San Francisco Bay Area, including San Jose and Silicon Valley, a relatively short distance away. The center's proximity to those places likely accounts a good portion of its visitation numbers, with many people coming in because they are in the area, not necessarily because they planned to come. The manager of the center estimated that visitation numbers would be lower, perhaps 30-35 percent lower if the center was located in a less popular tourist site.

While Mallows Bay is located in a different type of setting than the Monterey Bay National Marine Sanctuary, given its location in a large metropolitan area with strong tourism, a visitor center near Mallows Bay will likely experience a similar mix of visitors from the extended market area. A two-hour drive from Mallows Bay, which tourism industry representatives consider a reasonable day trip, extends all the way into the far reaches of the Washington-Baltimore metro area.

Papahanaumokuakea Marine National Monument-Mokupapapa Discovery Center

Hilo, Hawaii

Figure 20: Mokupapapa Discovery Center

The Papahanaumokuakea Marine National Monument is the largest contiguous protected conservation area in the United States and one of the largest marine conservation areas in the world. It encompasses 582,578 square miles of the Pacific Ocean. Originally called the Northwestern Hawaiian Islands Marine National Monument, it was established by a presidential proclamation in 2006. In 2007, the national monument was given its Hawaiian name, Papahanaumokuakea.

The Papahanaumokuakea Marine National Monument includes a 1,350 mile stretch of coral islands, seamounts, banks and shoals and a great diversity of coral, fish, birds and marine mammals, as well other flora and fauna, much of which is unique to the Hawaiian Island chain. Many of the islands in the national monument are important for rare species such as the green turtle and the Hawaiian monk seal, in addition to the 14 million sea birds that breed and nest there.

The Mokupapapa Discovery Center, located in Hilo, a town in the northeastern part of the island of Hawaii, serves as Papahanaumokuakea Marine National Monument's educational facility. According to the national monument's website, the center was established on the bayfront in Hilo in 2003 to "bring the place to the people," since most people would not have the opportunity to visit the remote islands in person. The center, which is housed in a century-old historic building, has interactive exhibits that allow visitors to explore the unique ecosystem of the Northwestern Hawaiian Islands. The exhibits cover marine life, coral reefs, and Hawaiian culture. The center provides a range of educational programs for children and adults. The programs include school field trips, summer camps, and public lectures. It also supports ongoing research into the Northwestern Hawaiian Islands to inform conservation efforts and education programs.

The Mokupapapa Discovery Center has a 3,500 gallon saltwater aquarium that showcases a variety of the marine life in the Northwestern Hawaiian Islands. It features life-size models of various wildlife found in these islands including albatrosses, monk seals, and sharks. The center also displays artwork inspired by the Northwestern Hawaiian Islands and Hawaiian culture and interpretive panels with information about the area's natural and cultural history.

According to the superintendent of the Papahanaumokuakea Marine National Monument, contacted for this study, annual visitor numbers are quite strong. In 2019, before the COVID-19 pandemic, there were 59,477 visitors to the Mokupapapa Discovery Center. The center was closed most of 2020, from mid-March through

December, as well as all of 2021. Year-end visitor numbers in 2023 were heading closer to pre-pandemic numbers, with 52,748 visitors.

Peak months for the visitors to the Mokupapapa Discovery Center are March to July. The superintendent of the Papahanaumokuakea Marine National Monument reported that a survey of visitors to the former location of the discovery center indicated that half of the visitors were local residents and repeat visitors. He noted that while they have begun collecting data for visitor origin and do not have statistics currently available, they believe that most of the primary visitors to the discovery center are still local residents. The geographic origin of the rest of the visitors are inter-island, mainland continental United States, Canada, Australia, Japan, Germany, United Kingdom, as well as other European countries, and Asia.

While the Papahanaumokuakea Marine National Monument area is quite different from the area surrounding Mallows Bay National Marine Sanctuary, the specific location of the Mokupapapa Discovery Center in a town may be relevant as a comparison should the Mallows Bay visitor center end up in Indian Head, the closest town to the sanctuary. On the Papahanaumokuakea Marine National Monument website, the decision to place the discovery center in the center of a town is the good way to reach the people of the area and meet visitors from elsewhere as well.

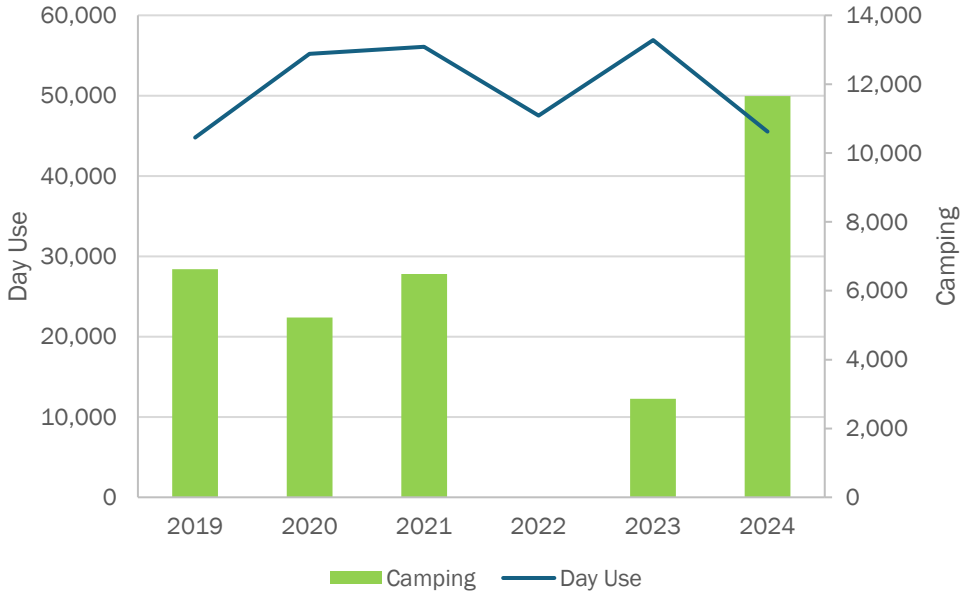
Smallwood State Park

Marbury, MD
Smallwood State Park, located 9.5 miles by car from Mallows Bay Potomac River National Sanctuary, is a relevant case study because it attracts a substantial number of visitors, who are separate and apart from Mallows Bay visitors at the present time. It is especially important to do a close-up analysis of Smallwood State Park's current visitors because it is one of four potential sites for the future visitors center for Mallows Bay, as described earlier in this report.

As noted earlier in this report, Smallwood State Park is 628-acre park with a marina, boat and kayak launching ramps, a picnic area, a camping area, pavilions, two playgrounds, and nature trails located on Mattawoman Creek, a tributary of the Potomac River. Also on the grounds of the state park are the Sweden Point Discovery Center, an educational center that offers the public, especially children, an opportunity to explore their natural surroundings, along with Smallwood's Retreat House, a restored 18th century tidewater plantation house with a 19th century tobacco barn, and the Mattawoman Creek Art Center.

As shown in Figure 25, the number of day users at Smallwood State Park annually has increased considerably in recent years, from 44,787 in 2019 to 56,916 in 2023. The increasingly popularity of the Smallwood State Park is noteworthy in the discussion of the Mallows Bay Potomac River National Marine Sanctuary for three reasons: 1) it is situated on a somewhat similar waterfront location near Mallows Bay, and 2) it offers many of the same activities for visitors as does Mallows Bay Park minus the shipwrecks, and 3) it is likely that some visitors to Smallwood State Park would be interested in visiting the Mallows Bay Park and sanctuary.

Figure 21: Number of Visitors to Smallwood State Park, 2019 to 2024



Note: Campgrounds were closed for renovations in 2022 and 2023.
Source: Smallwood State Park, BAE, 2024

While those traveling to Smallwood Park's marina or boat launches may not be as likely to be interested in the sanctuary visitor center, there will almost certainly be some crossover between Smallwood State Park day users and the new visitors center. This likely shared interest is calculated into the visitor estimates for the future Mallows Bay Potomac River National Marine Sanctuary Visitors Center, which is Site #3, the Waterfron in Marbury option.

Projected Visitor Center Attendee Estimates

This section projects the estimated number of attendees for the proposed Mallows Bay Marine Sanctuary Visitor Center. The methodology for calculating this estimate consists of three parts: (1) Determine the annual visitor count of the sanctuary itself; (2) Using the sanctuary's visitor count, project the visitor count of the proposed Visitor Center at a generic site and compare the projection to visitor counts of comparable marine sanctuaries for plausibility; and (3) Using the projected Visitor Center's visitor count, adjust the count for the specific sites based on various factors, constraints, and assumptions.

As shown in Table 6, the annual number of visitors to the Mallows Bay Marine Sanctuary was calculated by multiplying a factor of two to the actual vehicle count for each year provided by the Charles County Department of Recreation, Parks, and Tourism. The average was then calculated using the four non-COVID years.

Table 1: Estimated Annual Visitor Count Mallows Bay Marine Sanctuary

Year	Mallows Bay Marine Sanctuary Actual Vehicle Count	Mallows Bay Marine Sanctuary Estimated Visitor Count
2019	19,265	38,530
2020 (COVID: Excluded from Average)	25,402	50,804
2021	21,294	42,588
2022	22,261	44,522

2023	21,055	42,110
Annual Average	**20,969**	**41,938**

To determine the profile of the visitors to the Mallows Bay Sanctuary, the methodology adopted three categories of visitors: (1) Local, that is, visitors from within Charles County; (2) visitors from the combined Washington, DC-Baltimore Consolidated Statistical Area (CSA) presumed to be day trippers; and (3) visitors from outside the Local and CSA areas, which is visitors from around the U.S. and beyond. To determine the percentage of each visitor category, the methodology utilized the visitor count and zip codes from the Atlantic Kayak Mallows Bay kayak tour data and the Mallows Bay Intercept Survey (8/24 - 25/2024) provided by Charles County.

Table 2: Mallows Bay Marine Sanctuary Visitor Segmentation

	Mallows Bay Sanctuary Annual Estimated Visitor Count
Annual Average (2019-23, excl 2020 COVID)	**41,938**
Charles County/Local %	17.89%
Charles County/Local Visitor Count	7,504
CSA %	71.88%
CSA Visitor Count	30,145
Number of Outside Local & CSA%	10.22%
Number of Outside Local & CSA Visitor Count	4,288

A basic assumption of the methodology is the projected annual visitor count for Mallows Bay Visitor Center at a generic site would be the same as the average annual visitor count for the Mallows Bay Marine Sanctuary (41,938). To determine the reasonableness of this assumption, the Table 8 compares this estimated with the actual annual average visitor count to the Thunder Bay Marine Sanctuary Visitor Center and the Olympic Discovery Center. (The visitor data were provided by the respective visitor centers.)

Table 3: Mallows Bay Marine Sanctuary Visitor Center Visitor Count vs. Thunder Bay Visitor Center and Olympic Coast Discovery Center

Year	**Mallows Bay Projected Visitor Count Based on Annual Mallows Bay Sanctuary Visitor Count**	**Actual Annual Thunder Bay Visitor Center Count (Note 1)**	**Actual Annual Olympic Coast Discovery Visitor Count (Open for Only 21 Weeks a Year) (Note 2)**
2018	Excluded from Average	80,287	Excluded from Average
2019	38,530	65,161	5920
2020	50,804 (Excluded: COVID)	5,430 (Excluded: COVID)	0 Excluded (COVID)
2021	42,588	0 (Excluded: COVID)	0 Excluded (COVID)
2022	44,522	56,234	6,068
2023	42,110	93,773	13,613
2024	Excluded from Average	Excluded from Average	12,737
Average (using 4 non-COVID years)	**41,938**	**73,864**	**9,585**

Note 1. 2023 count for Thunder Bay includes cruise passenger visitors (20 stops) as conveyed by the Superintendent of the Thunder Bay National Marine Sanctuary.
Note 2:. 2024 annual count for Olympic Coast is extrapolated based on actual attendance for the first 13 of 21 open weeks.

With the projected annual average visitor count to the proposed Mallows Bay Marine Sanctuary Visitor Center (generic site) established, the next step is to estimate the count for specific sites based on various factors, assumptions, and constraints.

Table 4: Estimated Annual Visitor Count for Mallows Bay Marine Sanctuary Visitor Center at Specific Sites

	Generic Site Annual Estimate	Site 2: Annual Estimate	Site 2 Est % Visitor Increase	Site 3: Annual Estimate	Site 3 Est % Visitor Increase	Site 4: Annual Estimate	Site 4 Est % Visitor Increase
Projected Annual Average	**41,938**	**44,034**	5.00%	**45,293**	8.00%	**45,293**	8.00%
CharlesCounty/Local %	10.00%	10.00%		10.00%		10.00%	
CharlesCounty/Local Visitor Count	4,194	4,403		4,529		4,529	
CSA %	80.00%	80.00%		80.00%		80.00%	
CSA Visitor Count	33,550	35,228		36,234		36,234	
Number of Outside CSA %	10.00%	10.00%		10.00%		10.00%	
Number of Outside CSA Visitor Count	4,194	4,403		4,529		4,529	

Site 1 was not included in the analysis because of the constraints noted in the report previously.

The common factors and assumptions for the increase of the projected visitor count for the three sites are:

- Impel as many sanctuary visitors as possible to come to the Visitor Center as a first stop. For example, require all kayak tour groups to start at the Visitor Center.
- Marketing is improved
- Signage is improved
- The Visitor Center building is architecturally distinctive and becomes an attraction itself.

For Site 3, an incremental increase may be derived from the fact that nearby Smallwood Park is itself a destination, and that some of these park visitors will come to the Visitor Center due to its proximity.

For Site 4, an incremental increase may be derived from these factors:

- This area has more direct access from Indian Head Highway (MD 210) and the Capital Beltway (I-495).
- Opportunity for more incidental visitors with in-town location.
- Indian Head is a growing town with new residential developments.

7b. PROXIMITY ANALYSIS: OTHER SITES AND PROGRAMS

For the Mallows Bay-Potomac River National Marine Sanctuary and the future visitor center to be successful it is essential the sanctuary has partners including sites, programs, and organizations that can provide contributing elements in support of the Management Plan. Below is a descriptive list of sites, programs, and organizations locally, regionally, and nationally that complement and support the Mallows Bay Potomac River National Marine Sanctuary and the future visitor center. Most of those listed below are already working with the sanctuary, and several of the sites, programs, and organizations are represented on the Sanctuary Advisory Council. The benefits of maintaining close relationships with these partners are many, but notably include providing input on what features, programs, services, and resources that the future visitor center should include, as well as the ability to promote the sanctuary and new visitor center to an expansive network of other organizations across the country. These sites, programs, and organizations are detailed below under the five action plans of the sanctuary Management Plan, which "sets priorities to guide sanctuary programs and operations to conserve and promote its maritime, historic, and cultural resources."

Five Action Plans

The Action Plans that are part of the Management Plan are Resource Protection; Recreation and Tourism; Education; Research, Science and Technology; and Sanctuary Operations and Administration. Many of the key sites, programs, and organizations that act as partners to the sanctuary are listed and described below under the action plan they support the most.

Resource Protection

As described in the sanctuary's Management Plan the resource protection action plan is to strengthen protection of the historic shipwrecks, assets related to the shipbreaking of historic ship vessels, other significant maritime cultural features in the area, and the natural resources in the remaining structures of the historic shipwrecks. **Maryland Historical Trust**, which according to its website, is the state agency "dedicated to preserving the legacy of Maryland's past" is a key partner to the sanctuary.[7] The Trust has worked with the sanctuary to help preserve and interpret the important maritime cultural landscape in Mallows Bay.

Other important partners are the **State of Maryland** and **Charles County, Maryland** which serve as sanctuary co-managers, to help protect and maintain all the property and assets of Mallows Bay Park. Specifically, the agencies who lead this effort are the **Maryland Department of Natural Resources (DNR)** and the **Charles County Department of Recreation, Parks, and Tourism**.
Other resource protection partners include the **Maritime Archaeological and Historical Society,** the **National Marine Sanctuary Foundation**, and the **Chesapeake Conservancy**.

Recreation and Tourism

The purpose of the recreation and tourism action plan is to enhance and promote tourism and recreational opportunities that align with the sanctuary objectives around resource protection. Key partners on this action include the **Charles County Department of Recreation, Parks, and Tourism,** that staffs and helps maintain and promote the sanctuary, as well as the **Maryland Office of Tourism** that promotes the Mallows Bay National Marine Sanctuary as one of the top tourism sites in Charles County. The state's Office of Tourism lists Mallows Bay first on the list of attractions in Charles County on its materials and promotional pieces.

Other partners under the recreation and tourism action plan include DNR's **Maryland Park Service**, which owns and operates state parks across the state and specifically the **Smallwood State Park**, also located along the Potomac River shoreline, a short distance from the sanctuary and Mallows Bay Park. Likewise, another key site nearby is the Purse Area, a former state park also located along the Potomac River shoreline, now subsumed by the **Nanjemoy Wildlife Management Area**, a 1,365-acre area managed by DNR.

[7] From https://mht.maryland.gov/Pages/about-MHT.aspx

In addition to the public agencies and public lands areas, organizations who lead outings and programmed visits to the Mallows Bay Park and sanctuary should be considered partners. Among these are **Southern Maryland Audubon Society** that leads birdwatching outings at Mallows Bay Park, **Atlantic Kayak Company**, which is based in Indian Head, leads many "Mallows Bay Ghost Fleet" kayak tours seasonally, and **REI**, which also leads kayak tours semi-regularly.

Education

The education action plan builds public understanding of the sanctuary's mission and encourages stewardship of its maritime resources. Education programs will be a particularly important aspect of the future visitor center's operations. Among the partners that are part of this action plan for the sanctuary now include the **Charles County Public School System**, with whom the sanctuary coordinates an interactive living classroom for students and resources for teachers to support learning about maritime heritage and archaeology, as well as ocean and environmental science.

Other education partners include the **National Association of Black Scuba Divers (NABS)** and **Diving With a Purpose** which have been part of a partnership with the Charles County Public School System to provide classroom and in-pool scuba instruction to students at two Charles County high schools, North Point and Lackey. According to the sanctuary's website, nearly 1,000 high school students have participated in classroom training and 100 students have participated in underwater training. The NABS/Diving With a Purpose program includes a day at Mallows Bay Park where students learn about environmental stewardship, cultural heritage, and education, vocation and career opportunities in advanced technologies. The curriculum for this program was developed by Charles County Public Schools.

Additionally, there is potential to reach out to other Southern Maryland school systems, including **St. Mary's County Public Schools** and **Calvert County Public Schools** to create education initiatives with the Mallows Bay-Potomac River Marine Sanctuary. There should be opportunities, particularly in St. Mary's County which does not have a maritime museum offering extensive education programs, to create the same type of living classroom that exists in Charles County schools. Such programs could focus on some combination of maritime heritage, underwater archaeology, and marine science.

Research, Science, and Technology

The research, science, and technology action plan sets forth a framework to encourage and coordinate archaeological and interdisciplinary research by sanctuary partners. The Mallows Bay Potomac River National Marine Sanctuary has worked with two such research partners, **Duke University** and **East Carolina University's (ECU) Program in Maritime Studies**, to further document the WWI-era Ghost Fleet and surrounding ecology using high technology and virtual models. The universities have conducted drone surveys and archaeological fieldwork in and around Mallows Bay. Duke University conducted several surveys using drones to capture LiDAR, visible spectrum and multispectral data to further characterize the wrecks and ecology in the area. ECU led an archaeological field school focused in Mallows Bay that included sonar surveys of areas never looked at before along the outer edge of the Ghost Fleet, Burning Basin, and targeted historical and site surveys of the outermost shipwrecks, as well as detailed archaeological drawings of several shipwrecks. Final products from both universities will help inform management decisions, be integrated into local educational programs, the website, and used as interpretive tools during outreach activities and future exhibits.

More specific info on both universities work in Mallows Bay is below:

Duke University's Aerial Survey of Select Locations Within Mallows Bay National Marine Sanctuary

Background and Context:
As a follow-on to Duke University Marine Robotics and Remote Sensing (MaRRS) Lab's aerial drone surveys

of the Mallows Bay region conducted in 2016 and 2017, NOAA has requested follow-on surveys to augment currently existing data, to track change within the areas previously surveyed, and to expand data collection to new areas and with newer sampling methods.

2024 priorities for these surveys are as follows:
Priority 1: Re-accomplish RGB basemap of Mallows Bay main site, incorporate LiDAR sensing, and expand the survey area.
Priority 2: Multi-spectral survey of Mallows Bay (to include seagrasses) for assessment of bio-mass and ecology of shipwrecks.
Priority 3: Survey of the Mallows Bay Burning Basin.

East Carolina University Program in Maritime Studies Archaeological Field School
The Program in Maritime Studies' Fall 2024 field school at the Mallows Bay Potomac River National Marine Sanctuary (MPNMS) in Charles County, Maryland conducted a remote sensing survey (marine magnetometer or gradiometer and side scan sonar) in two areas of the sanctuary. These areas will be, 1) within the area known as the "burning basin," and 2) along the outer edge of the main assemblage of abandoned hulls (in the direction of deeper portions of the Potomac River). The activities have the potential to discover previously unknown archaeological sites within sanctuary boundaries and allow for a more comprehensive characterization of known maritime cultural resources within MPNMS. Deliverables will also be used by NOAA on websites, education, and outreach products.

There may also be research or other partnership opportunities available for the sanctuary with Maryland colleges and universities in the region around the sanctuary including interdisciplinary research higher education institutions that have marine science programs. This includes the **University of Maryland College Park**, which has a graduate program in Marine-Estuarine Environmental Sciences and the **St. Mary's College of Maryland** that offers an undergraduate degree in marine sciences and has a course in underwater archaeology. Creating more connections in the region, create stronger ties, and more support in the primary market area for the sanctuary.

Sanctuary Operations and Administration

The Mallows Bay Potomac River National Marine Sanctuary is strongly networked with the **14 other marine sanctuaries** in the United States. While no two sanctuaries are alike in their offerings, activities or types of locations (i.e., urban, small town, or rural) they all are required to implement a final management plan. Eash one also sometimes has challenges with infrastructure, staffing, program support, or other issues. They can and do communicate with one another and share best practices. In particular the Mallows Bay Potomac River Marine Sanctuary has been in communication with the Thunder Bay National Marine Sanctuary located in Lake Huron near Alpena, Michigan, as it plans its future visitors center. Like Mallows Bay, the Thunder Bay sanctuary's primary attractions for visitors are shipwrecks. Thunder Bay also has a visitors center, the Great Lakes Maritime Heritage Center, which is not located in the sanctuary but rather in downtown Alpena nearby. Mallows Bay has the opportunity to learn from Thunder Bay and other sanctuaries as it begins planning its future visitors center.

7c. LOCAL ECONOMIC IMPACT OF VISITOR CENTER

New Non-Resident Visitor Spending Impacts

This section estimates the annual economic impacts from new non-resident visitor spending in Charles County associated with the Visitor Center at each site. For the purposes of this analysis, non-resident visitors are defined as non-local visitors who live outside of Charles County.

Methodology

To estimate the economic impacts of new non-resident visitors associated with the Visitor Center, this study uses IMPLAN, a widely used economic modeling software package. Core to the model is an input-output dollar flow table. For a specified region, the input-output table accounts for all dollar flows between different sectors of the economy. Using this information, IMPLAN models the way income is spent and re-spent in other sectors of the economy, generating waves of economic activity and job creation, or so-called "economic multiplier" effects. Once the economic events have been entered into the model, IMPLAN reports the following types of impacts:

- **Direct Impacts.** Direct impacts refer to the set of producer or consumer expenditures applied to the predictive model for impact analysis. It is the amount of spending available to flow through the local economy. IMPLAN then displays how the local economy would then respond to these initial changes. The direct impacts may equal the amount of spending input into the model, depending on a variety of factors.

- **Indirect Impacts.** The indirect impacts refer to the impact of local industries buying goods and services from other local industries. The cycle of spending works its way backward through the supply chain until all money leaks from the local economy, either through imports or by payments to income and taxes.

- **Induced Impacts.** The induced impacts refer to an economy's response to an initial change (direct impact) that occurs through re-spending of income according to household spending patterns. When households earn income, they spend part of that income on goods and services, such as food and healthcare. IMPLAN models households' disposable income spending and distributes it through the local economy.

As discussed above, the current annual non-resident visitation for the Mallows Bay Marine Sanctuary totals approximately 34,434. The projected annual non-resident visitation for the Visitor Center at Site 2 totals 39,631 and would represent an increase of approximately 5,197 non-local visitors annually compared to the existing annual visitation (see Table 10 and Table 11). The annual non-resident visitor attendance for the Visitor Center at Site 3 and Site 4 totals 40,764 would represent an increase of 6,330 non-resident visitors annually (see Table 10 and Table 11).

Table 5: Projected Annual Visitor Center Attendance by Site

	Site 2		Site 3		Site 4	
	Total	Percent	Total	Percent	Total	Percent
Projected Annual Attendance	**44,034**	**100.0%**	**45,293**	**100.0%**	**45,293**	**100.0%**
Local County Residents	4,403	10.0%	4,529	10.0%	4,529	10.0%
Non-Residents	39,631	90.0%	40,764	90.0%	40,764	90.0%

Source: BAE, 2024.

To estimate new non-resident visitor spending within the local economy, this analysis uses travel spending estimates for Charles County provided in a 2023 study prepared for the Maryland Office of Tourism.[8] This study provides data on visitor expenditures in the local economy by type of expenditure. Table 11 provides the estimated inflation-adjusted per capita expenditures per visit and the projected net change in annual non-resident visitor expenditures associated with each Visitor Center site. As shown, the net change in annual non-resident visitation associated with the Visitor Center at Site 2 (5,197) is expected to result in new annual visitor expenditures in Charles County totaling approximately $1.2 million. At Site 3 and Site 4, the new non-resident visitor expenditures in Charles County would total approximately $1.5 million.

Table 6: Estimated New Non-Resident Visitor Expenditures per Visit

Spending Category	Non-Resident Per Capita Expenditures per Visit (2024$)	Total New Annual Non-Resident Visitor Expenditures		
		Site 2	Site 3	Site 4
Lodging	$43.21	$224,562	$273,519	$273,519
Food & beverage	$74.34	$386,345	$470,572	$470,572
Retail	$33.54	$174,307	$212,308	$212,308
Recreation	$23.30	$121,090	$147,489	$147,489
Transportation	$58.48	$303,921	$370,178	$370,178
Total	**$232.87**	**$1,210,225**	**$1,474,067**	**$1,474,067**
Total New Non-Resident Visitation (a)		5,197	6,330	6,330

Note:
(a) Represents the net change in non-resident visitation associated with the Visitor Center at each site.

Sources: Maryland Office of Tourism, 2023; BAE, 2024.

As shown in Table 12, it is estimated that the increase in expenditures by new non-resident visitors to the Visitor Center at Site 2 would stimulate 11 new jobs and $391,000 in annual worker compensation, generating approximately $1.1 million in annual economic output in Charles County. At Site 3 and Site 4, new non-resident visitor expenditures would stimulate 13 new jobs and $476,000 in annual worker compensation, generating approximately $1.4 million in annual economic output in the County.

Table 7: Economic Impacts of New Non-Resident Visitor Expenditures

	New Non-Resident Expenditures		
	Site 2	Site 3	Site 4
Employment	11	13	13
Labor Income	$391,000	$476,000	$476,000
Output	$1,146,000	$1,396,000	$1,396,000

Notes: Impacts shown for Charles County. Dollar figures shown in 2024 dollars. Outputs rounded to the nearest thousand dollars.

Sources: Maryland Office of Tourism, 2023; IMPLAN; BAE, 2024.

[8] Tourism Economics. (July 2024). Economic Impact of Tourism in Maryland 2023. Prepared for the Maryland Office of Tourism.

8. INCORPORATION OF ELEMENTS TO THE MANAGEMENT PLAN

The Management Plan for the Mallows Bay National Marine Sanctuary

The national marine sanctuary provides coordinated and comprehensive management and conservation of maritime resources identified by the Mallows Bay-Widewater Historic and Archeological District listed on the NRHP through the joint management of the area by NOAA, the state of Maryland, and Charles County. This provides meaningful opportunities to promote recreation and tourism in the area, as well as enable extensive programs and partnerships for interpretation, education, and science that are identified in the management plan of the Sanctuary.

Management plans are sanctuary-specific planning and management documents used by all national marine sanctuaries. They identify needs, challenges, and opportunities, and develop a course for the future. A management plan describes the resource protection, recreation and tourism, research, and education programs that guide sanctuary operations, specify how a sanctuary should best conserve and promote its resources, and describe sanctuary regulations if appropriate. Development of MPNMS management plan began in January 2016 after conclusion of the public scoping period, and was updated after conclusion of the public comment period for the DEIS and DMP. Input gathered from resource users, stakeholders, interest groups, government agencies, and other members of the public during these processes was considered in developing the management plan, including comments regarding boundaries, education and outreach, recreation and tourism, funding, science and research, and sanctuary operations. This Facility Management Plan (FMP) guides MPNMS programs and operations by setting budget and project priorities. The plan also assists the Sanctuary Advisory Council in providing advice on management decisions and provides the public with a better understanding of the sanctuary's strategies to protect the resources of the Potomac River in and around Mallows Bay.

The core of the management plan consists of five action plans: **Resource Protection; Recreation and Tourism; Education; Research, Science, and Technology; and Sanctuary Operations and Administration**. Each action plan provides background information on resource management issues and an overview of the direction the sanctuary will take to address management needs. The goals for each action plan are summarized and the strategies describe how the goals will be accomplished for a particular issue or program area.

Resource Protection

As described in the sanctuary's Management Plan the resource protection action plan is to strengthen protection of the historic shipwrecks, assets related to the shipbreaking of historic ship vessels, other significant maritime cultural features in the area, and the natural resources in the remaining structures of the historic shipwrecks.

The proposed new center would call attention to the great significance of the historic shipwrecks by means of indoor and outdoor exhibits and educational activities. The resource protection action plan also includes managing visitor use, encouraging sustainable tourism, and enhancing public access, recreation, heritage tourism, and eco-tourism in a manner that is safe and minimizes potential impacts on sanctuary resources; and Increased public awareness of and compliance with protective measures for the resources will be enhanced through education and outreach. A new, sustainable building that is thoughtfully designed to protect the heritage and environmental resources of the site, while promoting safe tourism opportunities will be strongly promoted during the design phase of the new center. Further strategies of this goal include multi-media presentations, trainings for law enforcement agencies, collaboration with institutional, private sector, and non-profit partners, and ongoing monitoring programs, all of which can also be achieved through the use of new community and training classrooms in the new facility.

Recreation and Tourism

The purpose of the recreation and tourism action plan is to enhance and promote tourism and recreational opportunities that align with the sanctuary objectives around resource protection. Key partners on this action include the **Charles County Department of Recreation, Parks, and Tourism,** that staffs and helps maintain and promote the sanctuary, as well as the **Maryland Office of Tourism** that promotes the Mallows Bay National Marine Sanctuary as one of the top tourism sites in Charles County. The state's Office of Tourism lists Mallows Bay first on the list of attractions in Charles County on its materials and promotional pieces.

The new center will help to increase connectivity of existing and planned local points of interest and is envisioned to be in a centralized locale that provides public access to resources, water and land-based recreation, historical, cultural, and ecological interpretation, formal and informal education, and resource stewardship.

The new center will also greatly enhance the recreation and tourism opportunities for the Mallows Bay National Marine Sanctuary, through programmatic components for all ages, such as interactive educational exhibits, movie viewing areas, live animal exhibits and wildlife observation areas, playgrounds, scientific research areas, arts and crafts spaces, and outdoor and aquatic tours. In alignment with the management plan, staff at the new center will be able to manage and enhance public access, recreation, heritage and eco-tourism by delivering programs at the new center that include interpretive programs and public outreach to schools, community forums, and other interested institutions by relating the pre-history, history, and unique ecological evolution of the sanctuary area and its natural and historical resources, and its relationship to the larger landscape of the American environment and its maritime cultural heritage. The centner will help to utilize the designation to responsibly market a high quality visitor experience to domestic and international visitors.

Education

The education action plan builds public understanding of the sanctuary's mission and encourages stewardship of its maritime resources. Education programs will be a particularly important aspect of the future visitor center's operations. Among the partners that are part of this action plan for the sanctuary now include the **Charles County Public School System**, with whom the sanctuary coordinates an interactive living classroom for students and resources for teachers to support learning about maritime heritage and archaeology, as well as ocean and environmental science.

Some major components of the new center will include interactive exhibits describing the sanctuary's historical, cultural, and natural resources including shipwrecks, indigenous peoples, wildlife, environmental resources, human uses, challenges, and solutions, and will serve as the gateway between the sanctuary and the public.

The new center will help achieve the Education Action Plan by providing a facility that advocates to protect, systematically study, interpret, and manage the extensive archaeological and historical resource base at MPNMS through cooperative partnerships with extant educational, county, state, and national agencies, as well as community-based interest groups and professional organizations. The new center will also provide space to allow for educational opportunities and field study programs with the Charles County Public School System, the College of Southern Maryland, St. Mary's College, and other regional educational institutions, especially via STEM programs through the site's importance as a living laboratory. These programs can also enhance federal, state, local, and private partnerships working to conserve and promote the historic, cultural, natural, archaeological, recreational, educational, scientific, and aesthetic resources of the area. The educational offerings at the center will also contribute to efforts that introduce students to advanced technologies related to marine technology, remote sensing, data management and geographic information systems, and software engineering.

Research, Science, and Technology

The research, science, and technology action plan sets forth a framework to encourage and coordinate archaeological and interdisciplinary research by sanctuary partners. The center will help to promote research partnerships between the Mallows Bay Potomac River National Marine Sanctuary and other educational institutions, **Duke University** and **East Carolina University's (ECU) Program in Maritime Studies**, to further document the WWI-era Ghost Fleet and surrounding ecology using high technology and virtual models. The universities have conducted drone surveys and archaeological fieldwork in and around Mallows Bay. Duke University conducted several surveys using drones to capture LiDAR, visible spectrum and multispectral data to further characterize the wrecks and ecology in the area. ECU led an archaeological field school focused in Mallows Bay that included sonar surveys of areas never looked at before along the outer edge of the Ghost Fleet, Burning Basin, and targeted historical and site surveys of the outermost shipwrecks, as well as detailed archaeological drawings of several shipwrecks. Final products from both universities will help inform management decisions, be integrated into local educational programs, the website, and used as interpretive tools during outreach activities and future exhibits.

There may also be research or other partnership opportunities available for the sanctuary with Maryland colleges and universities in the region around the sanctuary including interdisciplinary research higher education institutions that have marine science programs. This includes the **University of Maryland College Park**, which has a graduate program in Marine-Estuarine Environmental Sciences and the **St. Mary's College of Maryland** that offers an undergraduate degree in marine sciences and has a course in underwater archaeology. Creating more connections in the region, create stronger ties, and more support in the primary market area for the sanctuary.

The new center will provide classrooms and research areas to help facilitate and advance the ongoing restoration of the Chesapeake Bay watershed and in particular, that of "The Nation's River" (as President Lyndon Johnson once called the Potomac River) by serving as a hub area for research and documentation of environmental change.

Sanctuary Operations Administration

The Mallows Bay Potomac River National Marine Sanctuary is strongly networked with the **14 other marine sanctuaries** in the United States. While no two sanctuaries are alike in their offerings, activities or types of locations (i.e., urban, small town, or rural) they all are required to implement a final management plan. Eash one also sometimes has challenges with infrastructure, staffing, program support, or other issues. They can and do communicate with one another and share best practices.

Staff training and operational development will take place at the new center in new administrative offices and meeting spaces, further encouraging the management plan goal to identify and prioritize staff resources and related capacities that are sufficient to implement management plan priorities. The staff at the center will work to develop and implement an annual operating plan for priority management plan actions and to ensure safety and compliance with administrative requirements and protocols.

Based on the objectives above, the new center is critical to achieving all of the management plan goals that have been established since the sanctuary's designation as a National Marine Sanctuary.