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Maryland Office of Outdoor Recreation: County-Level Insights

COURSE

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PALS

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Partnership for Action Learning in Sustainability

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ABOUT PALS

The Partnership for Action Learning in Sustainability (PALS) is administered by the National Center for Smart Growth at the University of Maryland, College Park (UMD). It is a campus-wide initiative that harnesses the expertise of UMD faculty and the energy and ingenuity of UMD students to help Maryland communities become more environmentally, economically, and socially sustainable. PALS is designed to provide innovative, low-cost assistance to local governments while creating real-world problem-solving experiences for University of Maryland graduate and undergraduate students.

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COMPANY BACKGROUND

Outdoor Recreation is defined by the Bureau of Economic Analysis (BEA) as activities that allow participants to actively engage with nature. These activities can include anything from birdwatching to canoeing or even relaxing at a beach. Specifically, there are two types of outdoor recreation: active and passive. For example, beachgoing and birdwatching are more leisurely and broad whereas canoeing and hiking are more active and narrower. However, in this report, the main objective isn't to discuss these two types of outdoor recreation, although their different economic implications and outdoor recreational engagement are considered. Rather, our goals are to analyze the current outdoor recreation landscape in specific counties and provide recommendations that could improve the outdoor recreation industry's performance and improve the experience of visitors engaging with these activities.

In this project we worked with Maryland's Office of Outdoor Recreation (OOR), Maryland's Department of Natural Resources (DNR) and the Partnership for Action Learning in Sustainability program (PALS). The OOR strives to support and enhance outdoor recreation activities throughout the state. They are guided by the "5 Pillars of Outdoor Recreation" listed on their website:

- Environmental Conservation & Stewardship
- Education & Workforce Development
- Economic Development
- Exercise Health & Wellness
- Equity, Access & Inclusion

The DNR's mission is to support ecological, social, and economic development across all Maryland communities through partnerships and data-driven efforts. The PALS program is a

group established and run by UMD students and faculty whose goal is to tackle sustainability related issues across the state of Maryland. This project's focus was primarily with the OOR, with the assistance and oversight of the DNR and the PALS program.

OPPORTUNITY

The Maryland Department of Natural Resources (DNR) is committed to enhancing the state's outdoor recreation landscape. With outdoor recreation representing a $9.4 billion industry in Maryland, the potential for economic growth through increased park attendance, expanded tourism, and the development of local outfitters and retail operations is significant. To realize this vision, the DNR must first understand what is currently being done, the challenges in the way, and the different opportunities across counties. The DNR is looking for research to achieve its goals of increasing park attendance through more engaging outdoor experiences and accessible infrastructure. The DNR is also looking to identify and even close regional revenue gaps within the outdoor recreation economy, particularly focusing on areas with deep untapped potential.

To achieve these goals and many more, the DNR is exploring trends in park use, revenue generation, and tourism patterns, with a specific focus on three counties: Cecil, Worcester, and Anne Arundel, to understand disparities and areas of opportunity. While the DNR's vision is very clear, there are several structural challenges that come it. One of the main challenges is funding limitations, as many counties lack the financial resources to invest in new infrastructure or even maintain existing facilities. With budget constraints, marketing efforts are limited, which can reduce the number of visitors attracted to the parks. Another challenge is a lack of resources such as limited access to equipment, facilities, or even many of the amenities. This lack of resources plays a large role in preventing the growth of outdoor services, for example, some counties don't have public transportation to parks and recreational areas.

Lack of personnel is another concern for the counties. Staffing shortages at all levels can greatly hinder operations and limit the quality of visitors' experiences. One common solution to this problem is seasonal hiring, which usually helps solve personnel shortages, but unfortunately seasonal hiring doesn't always meet the demand during peak times of the year.

These challenges highlight the difficulty of achieving the DNR's goals. Yet, they also emphasize the importance of identifying practical opportunities for growth in these counties' economic development departments. By focusing on Cecil, Worcester, and Anne Arundel Counties, the DNR hopes to better understand where data gaps are and what is needed to support the growth of the outdoor recreation department.

LITERATURE REVIEW

To gain insight into the current availability, collection, availability, and analysis methods of outdoor recreation data in Maryland, we conducted secondary research on data availability and outdoor recreation trends. Specifically, the team compiled three reports for the OOR: an exploration of outdoor recreation data availability across Maryland's 24 counties, a detailed analysis of outdoor recreation in the three focus counties, and a study of West Virginia's data collection techniques, as the state is an innovator in the field of outdoor recreation.

This research includes an analysis of various financial statements relating to tourism and hospitality across Maryland counties, as well as land preservation, park, and recreation plans (LPPRPs), BEA statistics, and other scholarly sources. The research provided many insights, most importantly the inconsistency across Maryland counties in collecting and reporting outdoor recreation data.

After performing this research, the team also undertook informational interviews with representatives in the outdoor recreation industry.

Informational Interviews

West Virginia

Dr. Danny Twilley is the Assistant Vice President of Economic, Community, and Asset Development for the Outdoor Economic Development Collaborative at West Virginia University. He is currently researching ways to expand the state's outdoor economy by leveraging its outdoor recreation assets. Twilley explained that tourism data shows that younger population is leaving states such as West Virginia for states like Utah, Montana, and Colorado for a higher quality of life, which stems from the multitude of outdoor recreation opportunities offered: skiing, rock-climbing, and hiking, as well as the opportunity to work remotely. Twilley also noted that he is working to understand and combat this issue through a new system called asset mapping, where residential areas are mapped with proximity radii to display how many, and what types, of outdoor recreation opportunities are available to residents.

Worcester County

From representatives of Worcester County's Office of Tourism and Economic Development, Melanie Purcell, Director, and Brianna Dix, Marketing Specialist, we learned that the county is facing structural issues, as many of their iconic outdoor recreation assets like the Assateague Island National Seashore attract tourists, but they often overshadow the county's other offerings like coastal bays and inland parks. These areas remain underused due to limited public access points, minimal marketing reach beyond Ocean City, and a lack of businesses that

support outdoor recreation. There is a shortage of kayak and bike rental businesses, guided tour operators, and other outdoor recreation service providers, particularly in the southern part of the county. They also pointed out the lack of clear data collection for outdoor recreation, as many critical data points aren't included for activities like camping, trail use, and wildlife viewing. While the county has taken steps to collect more data, using platforms like Placer.ai and Zartico to get anonymous location data from mobile devices to identify patterns, unfortunately only Ocean City has full access to and actively uses this data.

Anne Arundel County

Heather Erst is Director of Tourism Development, and Christine McNichols is Business Intelligence Analyst, at the tourism office Visit Annapolis and Anne Arundel County. They shared that a key concern was the underuse of waterways for outdoor recreation; despite several rivers, creeks, and shoreline areas, there are only six paved public boat ramps and 28 public car top boat launch areas in the county (LPPRP). Another prominent issue they identified was the fragmented and underused network of biking and hiking trails, as well as the lack of maintenance of existing trails. Field visits corroborated this, and according to a survey in Anne Arundel County's LPPRP, residents identified the biggest need for improvement in walking and biking trails (LPRRP).

Cecil County

Sandy Turner, the director of Cecil County's tourism department, shared that the main issue in Cecil County is data collection, because they only receive a few statistics per year from an impact study: total visitor spending, tax revenues, employment, and labor income, but no other specific details or analysis of country trends. Cecil County's last major study was

performed more than ten years ago when they partnered with state parks to interview residents and collect data on where visitors came from and what they were looking for in their visits. Turner emphasized how useful it would be for the county to have a more technology-oriented way to collect this data every year, providing continued insight into visitor preferences and behavior.

ANALYSIS

Our research showed several major themes in Maryland's outdoor recreation economy. Through interviews with West Virginia and the three counties, we chose to tailor solutions to the quality of life and population trends discussed by Dr. Twilley, the gaps in infrastructure and business support in Worcester County, and the overall insufficiencies in data collection and accessibility throughout the state.

In the West Virginia interview, we learned about young professionals moving to states with strong outdoor recreation economies such as Utah and Colorado. Our recommendations should be tailored to optimizing Maryland's natural landscape and unique locations to create a reputation in outdoor recreation. West Virginia's use of asset mapping could be useful to meet this goal and in strengthening outdoor recreation in general.

In Worcester County, the main problem is that iconic places like Assateague Island and Ocean City attract a lot of visitors, but there is untapped potential for outdoor recreation in the southern parts of the county, specifically along the Potomac River. The key here is to create solutions that address the lack of outfitters, in a way that ensures they can be sustained.

Anne Arundel County faces issues that arise from having water access and trail systems that aren't fully optimized. Solutions in Anne Arundel County should focus on these problems by creating more water recreation opportunities and cleaning up the trails.

Additionally, Cecil, Anne Arundel, and Worcester County all have problems with data collection. Given that Cecil County hasn't had detailed data collection in more than ten years, they would benefit greatly from an improved data-collection system. Anne Arundel County needs more outdoor recreation data, and Worcester County analysts need mechanisms to collect data outside Ocean City. Therefore, the solutions should focus on state-wide data collection.

RECOMMENDATIONS

Drawing from research and interviews, the key recommendations are intended to strengthen Maryland's outdoor recreation economy. They are derived from county-specific challenges but should be implemented state-wide.

Develop profit-generating ways to improve overall outdoor recreation.

- Expand and Brand Signature Outdoor Locations. Promoting iconic destinations like Deep Creek Lake, Sugarloaf Mountain, and Assateague Island as part of a unified outdoor recreation brand would elevate these locations and boost tourism. This would give Maryland a stronger identity in the outdoor recreation space.
- Host Major Outdoor Events. Large events like climbing competitions, ski races, and outdoor festivals can build visibility, energize local economies, and position Maryland as a top outdoor recreation destination. The state can profit off these events. Enlisting the help of volunteer organizations and business sponsors can keep costs down and earn

money through ticket, food, and merchandise sales. These ideas were developed based on the interview with Danny Twilley of WVU. Many states, including West Virginia, are growing their outdoor recreation industries to attract young professional talent to live in the state. Maryland's diverse outdoor ecosystem provides plenty of opportunities to compete with other great outdoor states. These changes should attract people and, along with the other recommendations, make Maryland a more attractive place to live. These changes would also be great for visibility, helping promote Maryland's underused outdoor recreation opportunities. Advertising in major locations and hosting major outdoor events would improve local economies in the short term from an influx of visitors and have long-term benefits, incentivizing people to move to Maryland.

Create Accessible and Affordable Water Recreation Infrastructure

- Expand Public Access Points. Many Maryland residents are eager to enjoy its waterways but face limited entry points. The state should prioritize expanding boat ramps and water entry points in Anne Arundel and Cecil Counties. Improving access increases equity and supports businesses like bait shops and gear stores.
- Develop and Promote Blueway Trails. Blueway Trails are like hiking trails, providing mapped and branded routes giving paddlers a guided experience through waterway systems. Many water trails like the Baltimore Blueway have been successful in increasing overall paddling participation. Promoting water trails could establish Maryland as a top paddling destination. A strong Blueway Trail system can engage schools and outdoor clubs and encourage informal supervision of the state's water systems. To implement Blueway Trails, Maryland should prioritize major waterways like the Patapsco and Severn

Rivers and develop branded trail maps and signage. To increase demand for Blueway Trails, advertising should leverage social media and community water recreation events like group paddling. Guided paddle tours can encourage promotional activities and public engagement.

- Invest in Low-Cost, Low-Risk Outfitters. Traditional kayak and paddleboard rental operations are challenged by labor expenses, seasonality, and maintenance downtime. As a result, there aren't enough outfitters for the state to contract with and this in turn, leads to few independent businesses. Maryland can overcome these barriers by investing in publicly owned, automated rental centers like Kayakomat, which are solar-powered kiosks that allow consumers to book and return gear through their cell phones. The kiosks are low-maintenance, especially when situated at high-traffic waterfronts. Because they operate year-round and require few employees, they're ideal for counties that want to add recreation options without breaking the county budget.

Strengthen Trail Networks

Interviews and research reports showed a demand for continuous trail networks and there are quite a few missing trail connections in the focus counties. These recommendations strengthen Maryland's trails by addressing gaps and promoting community-driven solutions.

- Repurpose underused public spaces into trail corridors. Maryland should convert underused public spaces like abandoned rail lines and vacant lots into accessible trail corridors. Partnerships with organizations like GreenScape and Rails-to-Trails

Conservancy will help guide the process. These are established organizations with expertise in land conversion and community engagement that could help transform neglected places into functional trails. Both organizations are extremely cost-effective, making them ideal partners for Maryland.

- Engage Youth and Justice-Involved Individuals in Trail Maintenance. To ensure long term sustainability and local ownership of Maryland's trail systems, the state should consider programs to engage high school students and justice-involved individuals in trail and park maintenance. The state can offer community service hours or hands-on experience with environmental work. Involving youth and convicts creates a sense of pride and responsibility, while also promoting teamwork and reintegration into the community.

  Trail maintenance is a problem identified by residents, but Maryland can't completely fix these problems because of the high costs of hiring and retaining workers.

  Community-based programs offer a cost-effective solution by offering service-oriented participation. These programs would reduce the burden on local governments and give people a strong tie to public land.

Standardize Outdoor Recreation Data Collection Across Maryland

- Invest in Artificial Intelligence Tools to Track Visitors. Maryland should invest in tools such as Placer.ai and Zartico to track visitor behavior and tourism patterns. Ocean City is using these tools, but the rest of Worcester County and the state don't. The state should expand its current data collection capabilities by either subsidizing access to these platforms or by creating a centralized system for statewide use. This change would ensure

consistent data collection across counties, helping Maryland better understand use trends, allocate resources more efficiently, and measure the economic impact of outdoor recreation.

- Establish a County-to-County Data Support System. Maryland should set up a "buddy system" whereby counties who have trouble collecting data can receive guidance from counties who have better data collection methods and tools. This would help streamline and unify the data collection process and help individual counties.
- Minimize Risks and Biases in Data Collection Practices. Maryland and its counties should consider and avoid the risks and biases associated with primary and secondary data collection. Biases associated with primary data collection include sampling bias (the sample not representing the population), selective bias (subjects who provide data may be unfairly sub-setted from the larger population or share some characteristic not everyone has), or response bias (subjects may provide false information due to feeling uncomfortable, rushed, or other reasons). Risks include lack of consent (for instance, if there are cameras but visitors aren't aware of them or that they're used to collect data). In secondary data collection, biases can include authors' personal biases (they may manipulate data in a biased or false manner). Risks include a lack of accuracy or corroboration with data (sources, depending on their purpose or ability, can provide different types of data from different sources, which can make information unreliable). Despite these risks and biases, it's important to note that there will always be bias in data collection. These risks and biases should be minimized as much as possible.

These recommendations aim to build a more cohesive, appealing, and accessible outdoor recreation landscape in Maryland. Expanding these opportunities will promote the economic growth the OOR aims to build through outdoor recreation.

ACTION PLAN

To implement the proposed recommendations and help Maryland fully realize its outdoor recreation economic development potential, we have outlined a phased action plan. This strategy emphasizes feasibility, scalability, and long-term impact.

Phase 1: Foundational Research and Assessment (0–3 months)

1. **Conduct asset mapping pilot:** Partner with a university or GIS contractor to launch a pilot asset mapping initiative in Worcester County, chosen for its strong mix of assets and development potential. This effort will assess the proximity of recreational amenities to residential areas and help identify gaps in access and infrastructure.
2. **Inventory existing infrastructure:** Collaborate with local officials in Anne Arundel, Worcester, and Cecil Counties to document existing outdoor assets such as trails, water access points, and outfitters. This inventory will be a baseline for infrastructure planning and investment.
3. **Evaluate data tools and licensing options:** Research the capabilities and costs of platforms like Placer.ai and Zartico. Explore options for statewide licensing or subsidized access for counties to enable consistent, high-quality data collection and analysis.

Phase 2: Infrastructure and Branding Rollout (3–12 months)

1. **Launch a unified branding campaign:** Partner with the Maryland Office of Tourism to develop a cohesive brand identity for Maryland's outdoor recreation economy. The campaign should highlight iconic destinations including Ocean City, Assateague Island, the Potomac River, Sugarloaf Mountain, and Deep Creek Lake, and others.
2. **Invest in low-overhead infrastructure:** Begin installing public-use amenities such as paddleboard and kayak stations, trail signage, and climbing walls. Prioritize low-maintenance, automated solutions to minimize long-term costs. Consider involving high school students in trail maintenance to fulfill community service hours and build local engagement.
3. **Incentivize high-performing counties to aid lower-performing counties:** The counties are at different levels in maintaining their offices of outdoor recreation. To streamline the DNR's Office of Outdoor Recreation and improve maintenance and enhancement efforts, consider providing some counties with funding to aid and guide counties that require assistance. This could be done through partnerships and state-sponsored social events. The funding could incentivize the counties to share details of how their maintenance and enhancement programs work.
4. **Plan and promote flagship outdoor events:** Develop and host seasonal large-scale events, including outdoor festivals and competitions. These events should aim to generate revenue through sponsorships, registration fees, vendor participation, and merchandise sales while raising the profile of Maryland's outdoor offerings.

Phase 3: Long-Term Strategy and Expansion (12+ months)

1. **Establish a statewide data collection hub:** Create or partner with an existing organization to develop a centralized system for collecting outdoor recreation data. This hub will integrate mobile analytics, user feedback, and economic indicators to inform long-term planning and evaluation.
2. **Expand trail connectivity projects:** Pursue federal and state grants to connect fragmented trail systems and repurpose underused public lands. Partner with organizations like the Rails-to-Trails Conservancy to accelerate development and ensure alignment with best practices.
3. **Scale business support and incentives:** Develop state-backed incentives such as tax breaks, grants, or technical assistance for outdoor recreation startups and small businesses. Special attention should be given to underserved areas, particularly in southern Worcester County, to promote equitable economic development.

KEY SUCCESS METRICS

1. **Increased park attendance**

In the future, a primary metric for evaluating growth and success will be an increase in park attendance and visitation. Monitoring use levels over time will measure how well strategies such as facility upgrades, new programming, marketing efforts, and accessibility improvements, are resonating with the public. Tracking visitor numbers in different seasons, user demographics, and types of parks or facilities, can give a clearer understanding of where engagement is growing and where additional attention may be needed. Higher

visitation will be a strong indicator that parks are becoming more valued and better used community assets. In turn, these trends will help justify future investments, guide resource allocation, and demonstrate public interest to stakeholders.

2. **Improved data availability and consistency across counties**

A critical component of a future measurement strategy is improving the availability, quality, and consistency of data across all participating counties. This indicator will measure the development and adoption of standardized data collection frameworks, regular reporting protocols, and centralized systems that enable easy access to comparable metrics. These frameworks should allow for a unified data collection method that allows users to consensually and responsibly handle visitor data. It should also allow the collection of a wide range of data for a better and more accurate analysis. Additionally, if multiple methods are used, they should corroborate the data they have in common. It's important to note, though, that despite the accuracy and sustainability there will always be bias and risks with data collection. There are too many tradeoffs (such as accuracy and consent, number of data collection methods, and alignment/corroboration). These risks and biases should be minimized as much as possible.

Improved data infrastructure will identify trends, evaluate program effectiveness, and highlight disparities or needs at the local level. This kind of uniformity is essential for ensuring accountability and transparency, supporting equity in regional planning, and facilitating collaborative efforts across jurisdictions. Measuring success through better data alignment can create a sustainable system for tracking and responding to outcomes in a

timely, evidence-based manner. Despite the accuracy and sustainability, it is important to note that there will always be bias in data collection. These risks and biases should be minimized as much as possible

3. **Growth in outdoor-related revenue and economic impact for local businesses**

Another key measure of future success will be the economic growth tied to outdoor-related activities, particularly the increased revenue generated for local businesses. Indicators include spending in nearby restaurants and lodging, gear and equipment rentals, and other tourism services that are directly or indirectly supported by outdoor recreation. This indicator will show how efforts contribute not just to individual well-being and public health, but also to local economic development. Time may reveal patterns of increased business activity in areas adjacent to parks and trails, signaling a positive return on investment. Additionally, tracking job creation, business openings, and tax revenue associated with outdoor commerce will provide a fuller picture of how a vibrant outdoor economy can enhance community resilience and prosperity.

4. **Increased resident and visitor satisfaction**

An important measure of success will be the satisfaction levels of both residents and visitors who engage with parks and outdoor spaces. This indicator will be evaluated through surveys, interviews, comment cards, and digital feedback platforms, to capture qualitative and quantitative data on user experiences. Tracking satisfaction over time can help assess the effectiveness of amenities, programs, customer service, cleanliness, accessibility, and overall environment. Higher satisfaction scores will indicate that park spaces are meeting the needs

and expectations of the communities they serve, helping build stronger public trust and deeper community connections. Additionally, increased satisfaction often correlates with higher use, repeat visitation, and positive word-of-mouth, making it a key indicator of long-term success and impact.

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