

## Executive Summary

### *Background on Project*

This project, titled “Reaching Students in the Chesapeake Bay Region,” focuses on a planning effort to replicate a successful model that recruits and retains underserved youth from urban communities in science, technology, engineering and mathematics (STEM). Currently, Ocean Discovery Institute provides tuition-free (but not commitment-free) programming to students within a single high-poverty, ethnically diverse community – City Heights in San Diego, California.

This model engages students in rigorous educational, scientific research, and environmental stewardship experiences as they grow from curious youngsters to young adults who will make a difference as science and conservation leaders. Ocean Discovery Institute’s model has demonstrated significant impacts on student achievement. Nine of the 13 elementary schools served by Ocean Discovery Institute have demonstrated increased scores on their state standardized tests during the course of their involvement with the program. Further, while nationally 1 in 10 low-income, first-generation college students earn a degree, 8 of 10 high school students in Ocean Discovery Institute’s programs earn a bachelor’s degree within 5 years. Sixty percent of those graduates have majored in science or conservation fields.



**Figure 1.** Third grade students begin on their path to science and conservation leadership, exploring their curiosities and gaining scientific understanding and skills as they perform a sea star dissection.



**Figure 2.** Locations in the continental United States where Ocean Discovery Institute may replicate. Black logos are locations that have not yet been investigated. Blue logo in CA represents the San Diego location.

Because of these achievements, Ocean Discovery Institute’s model has received national recognition for its success in cultivating a new generation of leaders from populations that are traditionally under-represented in STEM fields and living in an urban, high-poverty community. Twelve years after our founding, Ocean Discovery Institute was awarded The White House’s 2011 Presidential Award for Science, Mathematics, and Engineering Mentoring.

The planning to expand the impact of Ocean Discovery Institute's programs began in 2008. Back then the idea of increasing the scale of operations on both local and national levels began to take shape, all with the goal of reaching more underserved, urban youth. The strategy for local expansion has been focused on building the Living Lab, a place in the City Heights neighborhood where youth and their families from the community can learn about and participate in science and conservation activities. The strategy for national expansion focused on replication<sup>1</sup> of Ocean Discovery Institute's model in a number of US urban communities (Figure 2).

As part of a growing partnership with Ocean Discovery Institute, staff from the National Oceanic and Atmospheric Administration (NOAA) approached Ocean Discovery Institute's leadership to explore the possibility of replicating the model in the Chesapeake Bay region because Ocean Discovery Institute's model addresses NOAA's educational goals to improve environmental literacy and diversify the US workforce in fields related to NOAA's mission. Further, the model could fill an existing gap in STEM education and workforce development in urban centers throughout the region. With support from NOAA's B-WET Program in 2013, Ocean Discovery Institute embarked on a study to investigate feasibility of replicating their model in an urban center within the Chesapeake Bay's watershed. The three urban areas considered were Baltimore, Maryland; Washington, DC; and Hampton Roads, Virginia.

### *Methodology*

To assess whether replication of the model was feasible in the Chesapeake Bay region, Ocean Discovery Institute assembled a team of staff members, consultants, and advisors who collectively pursued two lines of inquiry: (1) "Which replication strategy will be most successful?" and (2) "Which location, if any, would enable implementation of the model to succeed?" These two questions were investigated more or less simultaneously but relied on different methods and sources of data, including publicly available online data on demographics and organizations, stakeholder interviews, and site visits to the region. Additionally, the research was grounded by a review of the literature on replication of non-profit organizations, internal evaluation of Ocean Discovery Institute's model, and a review of case studies of non-profit educational or workforce development organizations that have successfully replicated in the United States. The team utilized these data, as well as their instincts based on experience, to make decisions throughout the study.

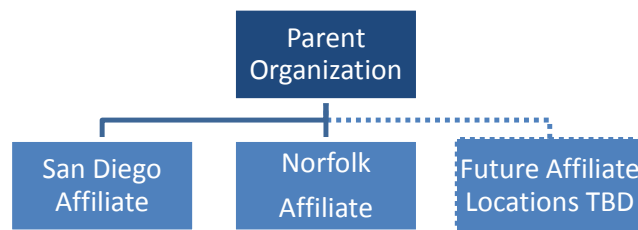
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<sup>1</sup> For the purposes of this project, replication is "the transfer to a different location of test concept, a pilot project, a small enterprise, and so forth, in order to repeat success elsewhere", and is also sometimes referred to as "scale-out" (Creech 2008).

### *Findings Regarding Replication Strategy*

At the outset of this study, the replication team assumed that the best strategy for replication in the Chesapeake Bay would be to find a local partner that would adopt and adapt Ocean Discovery Institute’s model. However, nine months into the study, that assumption was proven wrong. This meant that the team’s investigations with potential partners would focus on partners who might assist with programming but not full adoption of the model. The team had to shift the approach from adoption by a partner to setting up a whole new organization. Therefore, in order for replication to occur, the organizational structure of Ocean Discovery Institute must transition to one with a parent organization and local affiliates (Figure 3). Once this occurs, the existing San Diego-based organization will become an affiliate, Norfolk may be established as the second affiliate, and other sites may follow.

This shift in approach also meant that Ocean Discovery Institute needed to expand their program model to a more fully fleshed out business model that could guide work in San Diego but also development of new organizations in other geographical locations. The business model has been designed to maintain fidelity to aspects that are essential for reaching and sustaining success regardless of location. These essential components include: the



**Figure 3.** Recommended new structure of Ocean Discovery Institute that will support replication in new locations nationally and expansion within San Diego’s City Heights community.

organizational culture founded on the unshakeable belief in young people’s ability to transform their lives; the systems that support operations; the cost structure and resources needed to sustain operations; and the programs that result in transformational impacts on the students and their community. But the model also requires adaptation to local conditions including the needs and assets of the community being served.

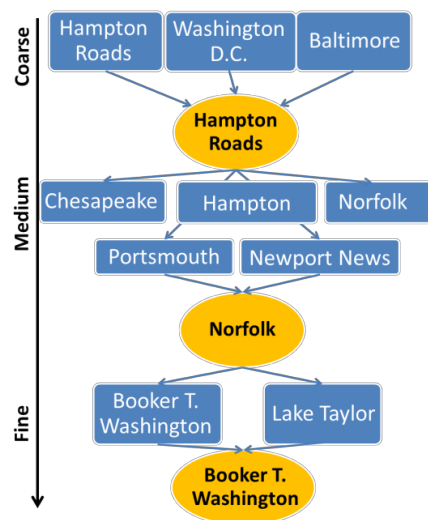
### *Findings Regarding Location for Replication*

Baltimore, Washington, and Hampton Roads all have high-poverty communities that would benefit from Ocean Discovery Institute’s model, but the degree of openness and interest uniquely demonstrated by potential partners in Hampton Roads led the team to narrow their investigation to that area.

To assess feasibility in this region, research focused on potential partners and sources of funding from Hampton Roads. The team concluded that Norfolk has the breadth of community-

based, academic, and STEM industry partners with the capacity and interest to support Ocean Discovery Institute’s model. The region also has the funding capacity to sustain operations of a Norfolk affiliate once it is established. It is projected that this affiliate can be self-sufficient from the initial implementation period onward, but this must be verified by the Norfolk board of directors once it is established. Further, the Norfolk Redevelopment and Housing Authority is one partner that will be critical during the early stages of replication because, as a community-based organization, they can be a champion, opening doors for Ocean Discovery Institute to a wide range of stakeholders in the area. These factors led the team to conclude that Norfolk would be the best location for the first attempt at replication.

Within Norfolk, the Booker T. Washington High School feeder pattern has been identified as the school-shed<sup>2</sup>, which includes the housing projects of Young Terrace and Tidewater Gardens, managed by Norfolk Redevelopment and Housing Authority. Why the Booker T. Washington school-shed? The demographics of the student population were closest to the benchmark school-shed, Hoover High School in San Diego, with respect to racial diversity, the size of the student population, the percentage of students qualifying for Federal free or reduced lunch, the high school graduation rate, and the academic proficiency scores. In addition, input from the Deputy Superintendent of Norfolk Public Schools and representatives of the Norfolk Redevelopment and Housing Authority confirmed that the Booker T. Washington school-shed has the greatest need for Ocean Discovery Institute’s model.



**Figure 4.** A schematic showing how the team’s focus narrowed over the course of the feasibility study.

### Conclusions

Replication in the Chesapeake Bay region is feasible, and Norfolk, Virginia and Booker T. Washington High School’s school-shed are the best places to start. It is recommended that replication in this city and school-shed proceeds in accordance with Ocean Discovery Institute’s Replication Strategy Matrix (Appendix I), which is a framework for implementation from now through early years of program implementation in Norfolk. This framework is divided into distinct phases of implementation containing groups of objectives (fundraising, organizational infrastructure, and program development) that must be met before the next phase begins. The

<sup>2</sup> A school-shed is defined as the area in which all of the young people “flow” into a single high school. It is how Ocean Discovery Institute defines the geographical extent of the community to be served by their model.

following considerations should guide how the objectives of Ocean Discovery Institute's replication strategy are implemented in the coming year:

1. The Replication Task Force of Ocean Discovery Institute's Board of Directors should remain in place to ensure that objectives are met before the next phase begins. The full Board should be kept informed of progress, particularly as each phase concludes.
2. Ocean Discovery Institute's relationship with NOAA (codified in a memorandum of understanding signed in January 2015) should be leveraged to ensure that NOAA's assets and capabilities are appropriately integrated as replication unfolds.
3. Additional advisors and consultants should be integrated as needed to provide expertise not present among staff and Replication Task Force to develop the parent organization's business model and the materials the parent organization will provide to the Norfolk affiliate.
4. A strong communications plan should be developed to ensure existing relationships with partners and potential partners in Norfolk continue to be fostered.
5. Norfolk relationships should be the primary mechanism for identifying potential board members.
6. Start-up funding must rely on national funders to support (1) Ocean Discovery San Diego growing to reach its entire school-shed, (2) the establishment of a parent organization, and (3) the establishment of the Norfolk affiliate so that it is ready to begin operations.
7. Securing funding for each phase will likely be the primary driver of the rate of implementation and, therefore, embarking upon the national funding strategy should be an immediate priority.
8. Ultimately, fidelity to the model is more important than meeting the estimated timeline. Success in San Diego, Norfolk, and any future sites, will depend upon this.