

**R30B34**  
**University of Maryland Center for Environmental Science**  
**University System of Maryland**

***Operating Budget Data***

(\$ in Thousands)

|  | <u>FY 15</u><br><u>Actual</u> | <u>FY 16</u><br><u>Working</u> | <u>FY 17</u><br><u>Allowance</u> | <u>FY 16-17</u><br><u>Change</u> | <u>% Change</u><br><u>Prior Year</u> |
|--|-------------------------------|--------------------------------|----------------------------------|----------------------------------|--------------------------------------|
| General Funds                            | \$20,598                      | \$21,347                       | \$21,691                         | \$344                            | 1.6%                                 |
| Deficiencies and Reductions              | 0                             | 119                            | -34                              | -153                             |                                      |
| <b>Adjusted General Fund</b>             | <b>\$20,598</b>               | <b>\$21,466</b>                | <b>\$21,657</b>                  | <b>\$191</b>                     | <b>0.9%</b>                          |
| Special Funds                            | 965                           | 1,006                          | 1,096                            | 90                               | 8.9%                                 |
| <b>Adjusted Special Fund</b>             | <b>\$965</b>                  | <b>\$1,006</b>                 | <b>\$1,096</b>                   | <b>\$90</b>                      | <b>8.9%</b>                          |
| Other Unrestricted Funds                 | 5,638                         | 7,146                          | 7,146                            | 0                                |                                      |
| <b>Adjusted Other Unrestricted Fund</b>  | <b>\$5,638</b>                | <b>\$7,146</b>                 | <b>\$7,146</b>                   | <b>\$0</b>                       | <b>0.0%</b>                          |
| Total Unrestricted Funds                 | 27,202                        | 29,499                         | 29,933                           | 434                              | 1.5%                                 |
| Deficiencies and Reductions              | 0                             | 119                            | -34                              | -153                             |                                      |
| <b>Adjusted Total Unrestricted Funds</b> | <b>\$27,202</b>               | <b>\$29,618</b>                | <b>\$29,899</b>                  | <b>\$281</b>                     | <b>0.9%</b>                          |
| Restricted Funds                         | 18,048                        | 18,115                         | 18,203                           | 88                               | 0.5%                                 |
| <b>Adjusted Restricted Fund</b>          | <b>\$18,048</b>               | <b>\$18,115</b>                | <b>\$18,203</b>                  | <b>\$88</b>                      | <b>0.5%</b>                          |
| <b>Adjusted Grand Total</b>              | <b>\$45,250</b>               | <b>\$47,733</b>                | <b>\$48,102</b>                  | <b>\$369</b>                     | <b>0.8%</b>                          |

- General funds increase by \$0.2 million, or 0.9%, in fiscal 2017 after adjusting for a \$0.1 million deficiency in fiscal 2016 for an increase in health insurance and \$34,000 for an across-the-board reduction in health insurance in fiscal 2017.
- The Higher Education Investment Fund increases just under \$0.1 million, or 8.9%, in fiscal 2017 resulting in an overall growth of \$0.3 million, or 1.3%, in State funds above fiscal 2016. The fiscal 2017 allowance also includes funding for increments budgeted in the Department of Budget and Management totaling \$0.4 million. If this is taken into account, State funds increase by \$0.6 million, or 2.9%.

Note: Numbers may not sum to total due to rounding.

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## ***Personnel Data***

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|                        | <b><u>FY 15</u></b><br><b><u>Actual</u></b> | <b><u>FY 16</u></b><br><b><u>Working</u></b> | <b><u>FY 17</u></b><br><b><u>Allowance</u></b> | <b><u>FY 16-17</u></b><br><b><u>Change</u></b> |
|------------------------|---|--|--|--|
| Regular Positions      | 272.86                                      | 273.86                                       | 273.86   | 0.00   |
| Contractual FTEs       | <u>73.00</u>                                | <u>73.00</u>                                 | <u>73.00</u>                                   | <u>0.00</u>                                    |
| <b>Total Personnel</b> | <b>345.86</b>                               | <b>346.86</b>                                | <b>346.86</b>                                  | <b>0.00</b>                                    |

### ***Vacancy Data: Regular Positions***

|   |       |       |
|---|-------|-------|
| Turnover and Necessary Vacancies, Excluding New Positions | 8.19  | 2.99% |
| Positions and Percentage Vacant as of 12/31/15            | 13.34 | 4.90% |

- The fiscal 2017 allowance provides no changes in regular or contractual positions for the University of Maryland Center for Environmental Science (UMCES).
- The vacancy rate at UMCES, 4.9%, is slightly below the University System of Maryland average of 5.3%.

## ***Analysis in Brief***

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### **Major Trends**

***Chesapeake Bay Restoration Projects Expected to Increase:*** UMCES is involved in many annual and one-time environmental projects across the State. The number of projects declined by 15 in fiscal 2015 but is expected to grow in fiscal 2016 and 2017.

***Research Expenditures Remain Strong:*** Research expenditures increased from \$40.7 million in fiscal 2007 to \$52.0 million in fiscal 2015.

***Participation Doubles in Environmental Education Programs:*** The number of K-12 teachers participating in education programs at UMCES increased to 888 in fiscal 2015, doubling in just two years due to a new grant program from the National Science Foundation.

### **Issues**

***UMCES Is Finally Granting Degrees:*** In January 2012, the Maryland Higher Education Commission approved UMCES’s mission, which includes a provision for UMCES to assume an expanded role in graduate and professional education. Chapter 95 of 2013 granted UMCES the ability to award certain joint degrees. This issue explores the changes occurring at UMCES.

***Nearly a Century of Bay Research and Advocacy:*** This issue looks at two initiatives with UMCES. The first is UMCES status as Maryland’s Sea Grant College, and the second looks at how UMCES is disseminating environmental data dashboards.

### **Recommended Actions**

1. Concur with Governor’s allowance.

*R30B34 – USM – University of Maryland Center for Environmental Science*

**R30B34**  
**University of Maryland Center for Environmental Science**  
**University System of Maryland**

## ***Operating Budget Analysis***

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### **Program Description**

The University of Maryland Center for Environmental Science (UMCES) is a research institution for environmental and natural sciences studies. Its mission is to develop a comprehensive program of environmental research, education, and service. Research focuses on the watersheds, estuaries, and coastal areas of Maryland and the greater Chesapeake Bay region, applying knowledge to help predict conditions in Maryland's ecology. Additionally, UMCES administers the Maryland Sea Grant College (MSGC) program. Funded by the National Oceanic and Atmospheric Administration (NOAA), the Sea Grant program is a network of 30 university-based programs located in the coastal and Great Lakes regions.

UMCES includes four geographically distinct laboratories under a single administration:

- Appalachian Laboratory in Frostburg, founded in 1962 at the headwaters of the Chesapeake Bay watershed with research focusing on landscape and watershed ecology;
- Chesapeake Biological Laboratory (CBL) on Solomon's Island, founded in 1925, conducts marine research and is home to UMCES's research fleet;
- Horn Point Laboratory in Cambridge, founded in 1973, conducts research on biology, chemistry, physics, and ecology of the organisms and ecosystems from wetlands and estuarine water of the Chesapeake Bay; and
- Institute of Marine and Environmental Technology (IMET) in Baltimore is a joint research institute between UMCES; University of Maryland Baltimore County; and the University of Maryland, Baltimore. UMCES at IMET researchers focus on developing biotechnology solutions to protecting coastal and marine environments.

Each of the laboratories serves as a regional center, offering natural science education programs to K-12 teachers and students. Environmental education programs also serve environmental interest groups and institutions within and beyond the University System of Maryland (USM) that are concerned with environmental research, education, and service.

UMCES faculty members contribute to graduate education by advising, teaching, and supervising the research of undergraduate and graduate students within USM degree-granting institutions. These activities further the institution's goals of providing quality research and graduate education and helping to build an educated workforce. UMCES provides advisory services to local

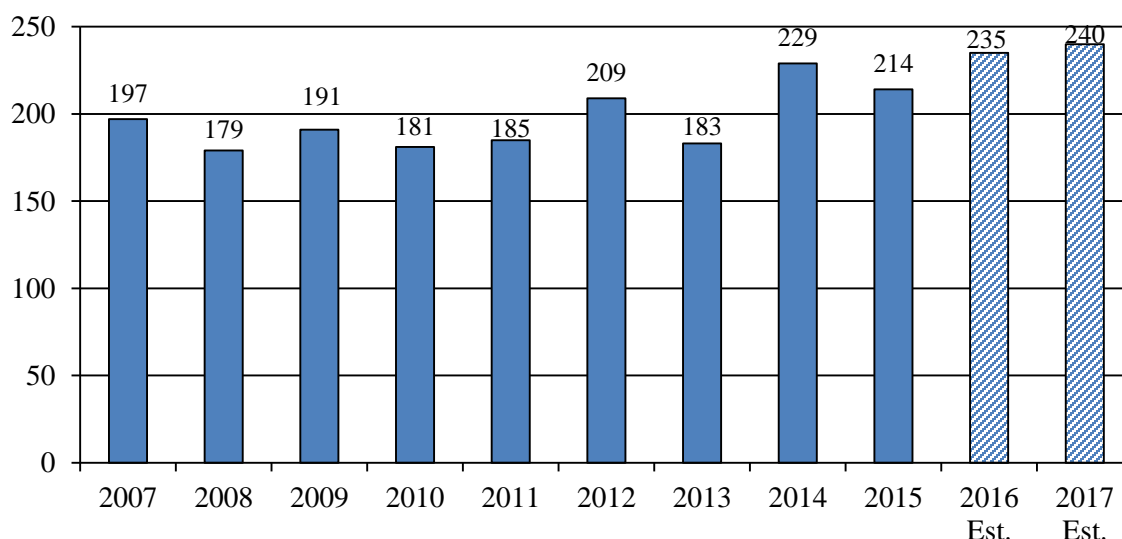
Chesapeake Bay industries and is the principal source of independent scientific information on environmental matters for Maryland’s lawmakers, State agencies, and regional and national coastal management programs. UMCES seeks financial support for its services through contract and grant agreements and contributions from private sources.

## Performance Analysis: Managing for Results

### 1. Chesapeake Bay Restoration Projects Expected to Increase

UMCES tracks the number of Chesapeake Bay restoration projects that it participates in as a measure of strengthening what it calls the predictive ecology for Maryland through relevant research programs. Projects focus on the bay and aspects of restoration ranging from research concerning the overall health of the bay down to a specific organism. For example, annual projects include the blue crab survey, which compiles observations from 1,500 locations throughout the bay. The total number of projects is driven mostly by grant funding, and individual project size and scope varies greatly. Since participating in 197 projects in fiscal 2007, the number of projects has fluctuated over the years reaching a low of 179 in fiscal 2008, as shown in **Exhibit 1**. In fiscal 2015, UMCES participated in 214 projects but estimates that projects will increase to over 230 in fiscal 2016 and beyond.

**Exhibit 1**  
**Chesapeake Bay Restoration Projects in Progress**  
**Fiscal 2007-2017 Est.**



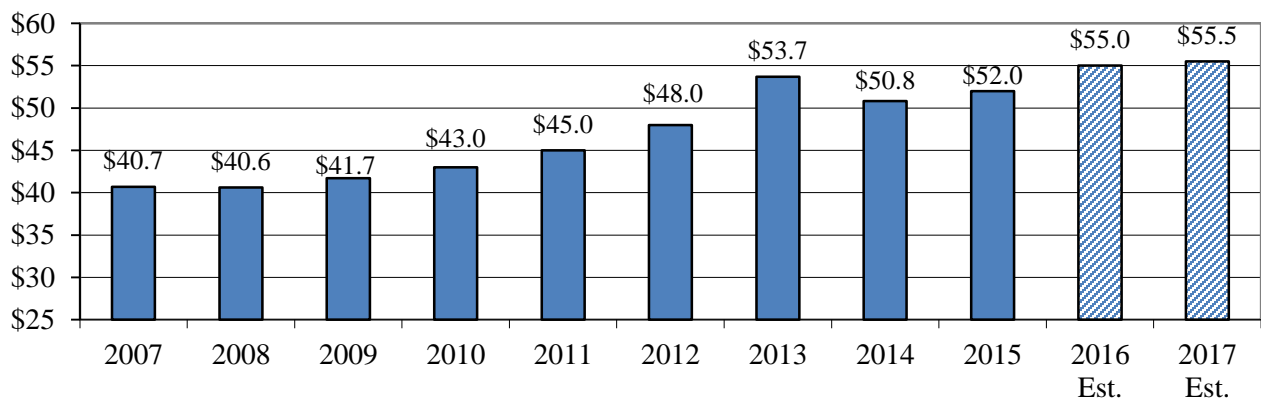
Source: Governor’s Budget Books, Fiscal 2007-2016; University of Maryland Center for Environmental Science

## 2. Research Expenditures Remain Strong

Increasing extramural support from government and private sources is a goal of UMCES. Additionally, USM established a goal of doubling research funding systemwide to \$2.4 billion by fiscal 2020 as part of its strategic plan to maintain Maryland as an innovation economy leader by attracting more federal funding to the State. This aligns with the most recent Maryland Higher Education Commission (MHEC) State Plan, from fiscal 2013, to increase innovation and research in higher education. As shown in **Exhibit 2**, UMCES was very successful as research expenditures grew \$13.0 million, or 31.9%, from fiscal 2007 to 2013. Since grants are usually multi-year, the year-to-year expenditures do not necessarily reflect the underlying total funding in grants that UMCES has been awarded in a particular year. Most funding is for peer-reviewed general research, rather than applied research.

Exhibit 2 shows research expenditures as categorized by, and reported to, the National Science Foundation (NSF), which includes UMCES’s entire budget, as well as some matching funds and facility or personnel funds that may be budgeted elsewhere. All else equal, if State support increases for any purpose at UMCES, NSF will report that UMCES’s research expenditures are growing. UMCES has stated that the total impact of federal sequestration, the federal shutdown, and other reductions in federal spending is difficult to quantify, but these actions did lead to the slight decline in research spending in fiscal 2014. However, as evidenced by the uptick in research spending in fiscal 2015, UMCES expects to remain very competitive for federal funding and to actually increase its federal support in fiscal 2016 and beyond.

**Exhibit 2**  
**Research Expenditures**  
**Fiscal 2007-2017 Est.**  
**(\$ in Millions)**



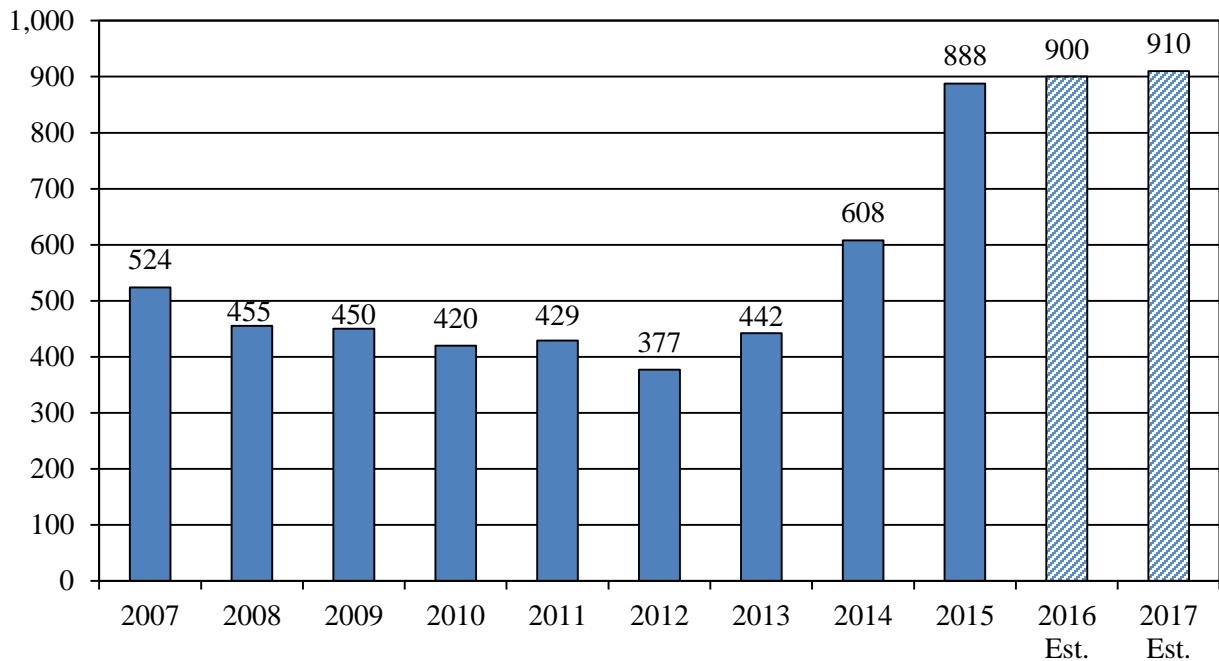
UMCES: University of Maryland Center for Environmental Science

Source: Governor’s Budget Books, Fiscal 2007-2016; University of Maryland Center for Environmental Science

### 3. Participation Doubles in Environmental Education Programs

In addition to research, UMCES strives to strengthen K-12 teacher training in environmental education programs. Starting with only 35 teachers in fiscal 2000, by fiscal 2007, UMCES trained a then record high of 524 K-12 teachers. As shown in **Exhibit 3**, the number of participating teachers in education programs at UMCES mostly declined from fiscal 2007 to 2012, but fiscal 2013 saw the first large year-over-year increase, growing to 442 participants. This number then doubled to 888 teachers in fiscal 2015 due to a new NSF grant for regional climate change education that is jointly managed with the University of Delaware, called Maryland and Delaware Climate Change Education Assessment and Research (MADE CLEAR). The MADE CLEAR funding is focused on middle school and high school teachers, will continue for another two years, and may be renewed. K-12 support also comes from private sources such as Dominion Power, which is currently providing grant support for training workshops for educators in Calvert and St. Mary’s counties to develop science lessons with field trips to partner facilities in Southern Maryland.

**Exhibit 3**  
**K-12 Teachers Participating in Environmental Education Programs**  
Fiscal 2007-2017 Est.



Source: Governor’s Budget Books, Fiscal 2007-2016; University of Maryland Center for Environmental Science



## **Fiscal 2016 Actions**

### **Proposed Deficiency**

A fiscal 2016 deficiency would provide the University System of Maryland Office with \$16.5 million to cover an increase in health insurance costs at all USM institutions (see USM Overview for further discussion). UMCES's estimated portion of the deficiency is \$0.1 million.

### **Cost Containment**

Cost containment measures in fiscal 2016 resulted in a 2%, or \$449,505, reduction in the appropriation to UMCES. This was met by eliminating 1 vacant accountant position (\$70,850) and reducing expenditures in general operations including deferral of equipment purchases and reductions in supplies and contractual services (\$378,655).

## **Proposed Budget**

As shown in **Exhibit 4**, total funding for UMCES in the fiscal 2017 allowance is \$0.4 million, or 0.8%, higher than in fiscal 2016, after accounting for all deficiencies and back of the bill reductions. The majority of the growth is in State funds, \$0.3 million, or 1.3%. However, this is less than half of USM's average increase in State support of 2.9%, partly due to the fact that UMCES receives no portion of the \$6.8 million in USM enhancement funds in fiscal 2017, which are focused on undergraduate programs. Fiscal 2017 personnel increments for UMCES, totaling \$0.3 million, are budgeted in the Department of Budget and Management. Including that funding, State support for UMCES grows \$0.7 million, or 1.5%, in fiscal 2017. Other unrestricted funds at UMCES are flat due to no expected changes in support through contracts and grants. Restricted funds grew 0.4% in fiscal 2016 and are expected to grow 0.5% in fiscal 2017, reflecting the strong competition over the diminishing pool of federal research grants. This is also lower than USM's total increase in restricted funds of 1.6%.

UMCES' State-supported budget by program is shown in **Exhibit 5**. In fiscal 2016, expenditures for plant increase by 11.4%, or approximately \$0.6 million, for facility renewal deferred from the prior year and conversion of positions at CBL. Expenditures on research, which account for nearly two-thirds of the budget, grow 8.0%, or \$1.4 million, primarily due to new projects and also personnel costs for grant researchers. Institutional support grows \$0.4 million in fiscal 2016 due to contract services and USM program enhancements in that year.

In fiscal 2017, research expenditures further increase by \$0.2 million, or 1.0%, due to increases in fringe benefit and other costs in the current services budget for UMCES. Plant funds increase by \$0.4 million, or 6.4%, due to catching up on facility renewal and more conversions of CBL facilities positions. Expenditures for institutional support decrease by \$0.1 million, or 2.0%, due to a reduction in contract services made in order to reduce institutional costs. Public service support is unchanged but will be used for a new exhibit design at the UMCES visitor center. The Higher Education Investment Fund (HEIF) increases due to realignment with expected fiscal 2017 HEIF revenue, and

other unrestricted funds decline in fiscal 2016 and are flat in 2017 due to lower private gifts, grants, and contracts.

**Exhibit 4**  
**Governor’s Proposed Budget**  
**University of Maryland Center for Environmental Science**  
**Fiscal 2015-2017**

(\$ in Thousands)

|                                  | <u>2015</u><br><u>Actual</u> | <u>2016</u><br><u>Working</u> | <u>2017</u><br><u>Allowance</u> | <u>2016-17</u><br><u>Change</u> | <u>% Change</u><br><u>Prior Year</u> |
|----------------------------------|------------------------------|-------------------------------|---------------------------------|---------------------------------|--------------------------------------|
| General Funds                    | \$20,598                     | \$21,466                      | \$21,657                        | \$191                           | 0.9%                                 |
| Higher Education Investment Fund | 965                          | 1,006                         | 1,096                           | 90                              | 8.9%                                 |
| Total State Funds                | 21,564                       | 22,472                        | 22,754                          | 281                             | 1.3%                                 |
| Other Unrestricted Funds         | 5,638                        | 7,146                         | 7,146                           | 0                               | 0.0%                                 |
| Total Unrestricted Funds         | 27,202                       | 29,618                        | 29,899                          | 281                             | 0.9%                                 |
| Restricted Funds                 | 18,048                       | 18,115                        | 18,203                          | 88                              | 0.5%                                 |
| <b>Total Funds</b>               | <b>\$45,250</b>              | <b>\$47,733</b>               | <b>\$48,102</b>                 | <b>\$369</b>                    | <b>0.8%</b>                          |

Note: Fiscal 2016 general funds are adjusted to reflect the University of Maryland Center for Environmental Sciences estimated portion of the deficiency, and fiscal 2017 is adjusted to reflect the across-the-board reduction. Numbers may not sum to total due to rounding.

Source: Governor’s Budget Books, Fiscal 2017; Department of Legislative Services

**Exhibit 5**  
**State-supported Budget Changes by Program**  
**Fiscal 2015-2017**  
**(\$ in Thousands)**

|                       | <u>2015</u>     | <u>Working</u><br><u>2016</u> | <u>% Change</u><br><u>2015-16</u> | <u>2017</u>     | <u>Change</u><br><u>2016-17</u> | <u>% Change</u><br><u>2016-17</u> |
|-----------------------|-----------------|-------------------------------|-----------------------------------|-----------------|---------------------------------|-----------------------------------|
| <b>Expenditures</b>   |                 |                               |                                   |                 |                                 |                                   |
| Research              | \$16,996        | \$18,352                      | 8.0%                              | \$18,526        | \$174                           | 1.0%                              |
| Plant                 | 5,146           | 5,732                         | 11.4%                             | 6,101           | 369                             | 6.4%                              |
| Institutional support | 5,021           | 5,377                         | 7.1%                              | 5,267           | -110                            | -2.0%                             |
| Public service        | 39              | 39                            | 0.0%                              | 39              | 0                               | 0.0%                              |
| Deficiency            |                 | 119                           |                                   | -34             | -153                            |                                   |
| <b>Total</b>          | <b>\$27,202</b> | <b>\$29,618</b>               | <b>8.9%</b>                       | <b>\$29,899</b> | <b>\$281</b>                    | <b>0.9%</b>                       |
| <b>Revenues</b>       |                 |                               |                                   |                 |                                 |                                   |

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|                                       | <u>2015</u>     | <u>Working<br/>2016</u> | <u>% Change<br/>2015-16</u> | <u>2017</u>     | <u>Change<br/>2016-17</u> | <u>% Change<br/>2016-17</u> |
|---------------------------------------|-----------------|-------------------------|-----------------------------|-----------------|---------------------------|-----------------------------|
| General Funds                         | \$20,598        | \$21,466                | 4.2%                        | \$21,657        | \$191                     | 0.9%                        |
| HEIF                                  | 968             | 1,006                   | 4.0%                        | 1,096           | 90                        | 8.9%                        |
| Other Unrestricted Funds <sup>1</sup> | 8,358           | 7,438                   | -11.0%                      | 7,438           |                           | 0.0%                        |
| Transfer(to)/from Fund Balance        | -2,722          | -293                    |                             | -293            |                           | 0.0%                        |
| <b>Total</b>                          | <b>\$27,202</b> | <b>\$29,618</b>         | <b>8.9%</b>                 | <b>\$29,899</b> | <b>\$281</b>              | <b>0.9%</b>                 |

HEIF: Higher Education Investment Fund

<sup>1</sup> Other State support is a component of unrestricted revenue. Other unrestricted revenue considered non-State support includes designated research initiative fund and self-supporting activities.

Note: Fiscal 2016 general funds are adjusted by \$0.1 million to reflect the proposed deficiency. Fiscal 2017 general funds are adjusted to reflect a \$33,809 across-the-board reduction in health insurance.

Source: University of Maryland Center for Environmental Science

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## Issues

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### 1. UMCES Is Finally Granting Degrees

After many years of discussion, UMCES now offers a joint degree program with the University of Maryland, College Park (UMCP) toward a Master's in Science and a Doctor of Philosophy in Marine-Estuarine-Environmental Sciences (MEES). The first MEES cohort entirely under the new degree designation enrolled in the 2014-2015 academic year, although students in the 2013-2014 academic year could elect to graduate with the new joint degree. Currently, there are about 80 total graduate students at UMCES, and about 90% are enrolled in MEES. The remaining 10% are in either the Graduate Program in Life Science at the University of Maryland, Baltimore or the graduate program in wildlife and fisheries and applied ecology at Frostburg State University. About 60% of MEES students pursue a master's degree, and the other 40% pursue doctoral degrees. All students complete a research thesis with any of about 70 faculty members who serve as graduate advisors and doctoral committee members. **Exhibit 6** shows the MEES concentrations and degrees awarded, usually about a dozen a year. Total degree output in MEES is fairly low, having produced fewer than 200 degrees from fiscal 2003 through 2014. Additionally, doctoral degree output seems unusually low in fiscal 2014, the first year of joint degrees, at only 2 awards, compared to an average of between 6 and 7 from fiscal 2003 through 2013.

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#### Exhibit 6 MEES Program Outcomes Fiscal 2003-2014

| <u>MEES Concentration</u>                     | <u>Masters</u> |             | <u>Doctorate</u> |             | <u>Total</u> |
|---|----------------|-------------|------------------|-------------|--------------|
|   | <u>2003-13</u> | <u>2014</u> | <u>2003-13</u>   | <u>2014</u> |              |
| Environmental Chemistry                       | 20             | 1           | 13               | 1           | 35           |
| Ecology                                       | 15             | 3           | 11               | 0           | 29           |
| Environmental Molecular Biology/Biotechnology | 4              | 0           | 4                | 0           | 8            |
| Environmental Science                         | 29             | 4           | 12               | 1           | 46           |
| Fisheries Science                             | 24             | 1           | 13               | 0           | 38           |
| Oceanography                                  | 17             | 1           | 18               | 0           | 36           |
| <b>Total</b>                                  | <b>109</b>     | <b>10</b>   | <b>71</b>        | <b>2</b>    | <b>192</b>   |

MEES: Marine-Estuarine-Environmental Sciences

Note: The 2014 data is the first year in which a student could receive a joint MEES degree.

Source: University of Maryland Center for Environmental Science

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## **The Road to Degree-granting Status**

The MEES program is reflected in the 2014 mission statement of UMCES that called for UMCES to “Build on the Center’s success in graduate education, including the leadership of the MEES program.” While the MEES program was established in 1978 as an interdisciplinary and inter-institutional graduate program, it was intended to be only a UMCP degree. Even with the recent changes, the program remains administratively housed at UMCP for support services including admissions, registration, billing, and financial aid. Additionally, students have access to services provided by the UMCP Graduate School including assistantships and academic mentoring. The MEES director is considered a UMCP employee who has a half-time teaching appointment supported by UMCP and a half-time research appointment funded by UMCES.

In December 2010, the USM Board of Regents (BOR) requested UMCES to revise its mission statement to further elaborate on its role in graduate education. The statement was modified to include a provision that “The USM and UMCES are developing a path for the Center to assume an expanded role in graduate and professional education, including possible accreditation as a graduate degree-granting institution.” The mission statement was submitted to MHEC in February 2011 for approval. MHEC approved UMCES’s revised mission statement in January 2012, and the statement received approval from BOR in late 2012. There was no change to the mission statement for UMCES that was most recently reviewed in December 2015 by MHEC.

The final step was gaining approval from the General Assembly of Maryland, which was granted in Chapter 95 of 2013. While the authorization from the USM BOR was broad, the General Assembly only gave UMCES authority to award “joint graduate degrees and post baccalaureate certificate programs.” Partners are limited to public senior higher education institutions. Current State regulations stipulate that joint degrees show both institutions’ names appearing side by side on the diploma. In addition, the 2012 Strategic Plan for UMCES notes that accreditation would enable it to offer professional development courses for credit and certificates in order to reach important and underserved markets, thereby contributing to the development of Maryland’s workforce and strengthening relationships with private- and public-sector employers. Currently, for MEES alumni for whom data is available, about 50% go into academia and 35% into public-sector jobs, leaving only 15% going to private industry. If UMCES created certificate programs for working environmental professionals who need additional training or specialized certification, it could make greater inroads in placing alumni in the private sector. In prior testimony on this issue, UMCES mentioned ecosystem restoration, applied environmental statistics, and marine biotechnology as potential programs it may offer.

**The President should comment on any decisions regarding offering additional degrees at UMCES, such as those mentioned in prior testimony. The President should also comment on how UMCES is working to build relationships with the private sector.**

## **Full Accreditation Decision Soon**

The Middle States Commission on Higher Education (Middle States) is the regional accrediting body that reviews higher education institutions in Maryland and the Mid-Atlantic region. UMCES

went through the exploration phase and application phase in 2013 with Middle States and prepared an *Accreditation Readiness Report* in November 2013. UMCES was then admitted to candidacy status, which allowed it to award degrees immediately. In fiscal 2015, UMCES underwent a self-study phase and received provisional accreditation. A final decision, expected to grant full accreditation status, will come at the next Middle States meeting in March 2016. Prior to these actions, UMCES had no relationship with Middle States. As is the case for all institutions, the accreditation readiness process is one-time only and full accreditation is reviewed only every five years thereafter. Although the punishment for loss of accreditation is getting cut off from federal Title IV financial aid, UMCES would lose no such aid as UMCP manages all federal aid programs. UMCES has stated in the past that maintaining accreditation will bolster its reputation and funding opportunities. UMCES has not yet received a Carnegie classification.

**The President should comment on what grant funding UMCES has been able to apply for now that it has degree-granting authority.**

## **2. Nearly a Century of Bay Research and Advocacy**

In fiscal 2015, UMCES celebrated its ninetieth anniversary as the oldest State-supported marine laboratory on the east coast. This issue will look at two initiatives at UMCES to promote research, understanding, and conservation of the Chesapeake Bay and surrounding environmental systems.

### **Sea Grant Colleges**

Since fiscal 2005, one of the main goals listed in the UMCES mission statement is to “Expand the role of UMCES and MSGC in environmental education and awareness of Maryland’s school children and citizens.” The National Sea Grant College Program was established by Congress in 1966 to be similar in scope and mission to land-grant colleges in the nineteenth century but with a focus on conservation of marine resources. NOAA has managed Sea Grants since its creation in 1970 and works with 33 member institutions across the United States and certain territories. The nearest neighboring Sea Grant institutions are the University of Delaware, which works with UMCES on MADE CLEAR, and Virginia’s College of William and Mary, which also focuses primarily on the Chesapeake Bay. According to the NOAA website, UMCP is the designated Sea Grant College in Maryland, and MSGC website brands itself as located at the University of Maryland (as UMCP is generally marketed). UMCES reports that, while Sea Grant staff work in UMCP offices with UMCP email addresses, they are, in fact, part of UMCES.

**Exhibit 7** shows the budget for Sea Grants within the UMCES budget. Overall, it amounts to only 4.9% of funding in the allowance, slightly lower than the 5.1% in the fiscal 2014 and 2015 budgets. Sea Grant funding is used for research and educational purposes very similar to the UMCES mission in general. For example, MSGC distributes research grants for competitive peer-reviewed work and smaller program development grants to address emerging needs. MSGC focuses on several topics in particular, including sustainable fisheries and aquaculture; resilient ecosystem processes and responses; and resilient communities and economies.

**Exhibit 7**  
**UMCES Budget Programs**  
**Fiscal 2014-2017**  
**(\$ in Thousands)**

|  | <u>Actual</u><br><u>2014</u> | <u>Actual</u><br><u>2015</u> | <u>Working</u><br><u>2016</u> | <u>Allowance</u><br><u>2017</u> | <u>% of</u><br><u>Allowance</u> |
|--|------------------------------|------------------------------|-------------------------------|---------------------------------|---------------------------------|
| Horn Point Laboratory                                | \$5,872                      | \$6,142                      | \$6,208                       | \$6,329                         | 27.8%                           |
| Central Administration                               | 5,380                        | 5,491                        | 5,995                         | 6,111                           | 26.8%                           |
| Chesapeake Biological Laboratory                     | 4,332                        | 4,533                        | 4,707                         | 4,799                           | 21.1%                           |
| Appalachian Laboratory                               | 2,180                        | 2,336                        | 2,362                         | 2,407                           | 10.6%                           |
| Research Fleet Operations                            | 1,113                        | 1,172                        | 1,172                         | 1,195                           | 5.2%                            |
| Sea Grant College                                    | 1,044                        | 1,092                        | 1,104                         | 1,125                           | 4.9%                            |
| Institute for Marine and<br>Environmental Technology | 768                          | 797                          | 805                           | 821                             | 3.6%                            |
| <b>Total</b>   | <b>\$20,690</b>              | <b>\$21,564</b>              | <b>\$22,353</b>               | <b>\$22,787</b>                 | <b>100.0%</b>                   |

UMCES: University of Maryland Center for Environmental Science

Source: University of Maryland Center for Environmental Science

Given that UMCES works very closely with UMCP and UMCP’s extension programs on regional environmental issues in existing research and there is already close collaboration with the MEES program, the lines of distinction between who administers MSGC is blurred. Consistent messaging about the operations of MSGC, especially in NOAA resources, would bring some clarity. Additionally, it appears that in comparing missions and goals of MSGC and UMCES the two are highly redundant as both promote public education and environmental research in Maryland and share personnel. This raises the issue of why UMCES and MSGC are distinct entities.

**The President should comment on the marketing of MSGC and whose faculty is conducting the Sea Grant research and how the MSGC organization is distinct from UMCES as a whole.**

### **Environmental Report Cards**

Quantifying the health of the bay is a difficult task given the complexity of environmental modeling, but UMCES, with its mission to inform policymakers with predictive ecology, started issuing reports cards for the bay beginning in fiscal 2006. With seven health indicators, the report card looks to summarize a very large amount of information through data dashboards and illustrations. The first report was poor, as the bay received a D+. The two most recent report cards, covering

calendar 2013 and 2014, place the bay at a C for “moderate health.” The Patapsco River received an F, while the lower bay, in Virginia, received a B-.

UMCES and other State agencies such as the Department of Natural Resources, are currently working to widely disseminate environmental information relating to climate change and the health of the bay to policymakers, stakeholders, and the public at large through existing networks and social media. This includes annual reports and updates, like the bay’s report card. More recently, UMCES has moved the bay report card from the UMCES website to a separate website, Eco Health Report Cards, to promote the development of environmental report cards for other nearby regions, such as the Delaware River and Long Island Sound, and international locations, such as the Great Barrier Reef. This will enhance UMCES outreach and data sharing by increasing collaboration with other institutions and scientists from other regions, but also deemphasizes the Maryland roots of UMCES and the bay report card.

**The President should comment on how to manage the content for the new website and what UMCES is learning about delivering big data content and visualization through websites and other means.**



## ***Recommended Actions***

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1. Concur with Governor's allowance.

## ***Current and Prior Year Budgets***

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| <b>Current and Prior Years Budgets</b>                               |                 |                |                |                     |                     |                   |                 |
|--|-----------------|----------------|----------------|---------------------|---------------------|-------------------|-----------------|
| <b>USM – University of Maryland Center for Environmental Science</b> |                 |                |                |                     |                     |                   |                 |
| <b>(\$ in Thousands)</b>   |                 |                |                |                     |                     |                   |                 |
|  | <b>General</b>  | <b>Special</b> | <b>Federal</b> | <b>Other</b>        | <b>Total</b>        | <b>Restricted</b> | <b>Total</b>    |
|  | <b>Fund</b>     | <b>Fund</b>    | <b>Fund</b>    | <b>Unrestricted</b> | <b>Unrestricted</b> | <b>Fund</b>       | <b>Fund</b>     |
|  | <b>Fund</b>     | <b>Fund</b>    | <b>Fund</b>    | <b>Fund</b>         | <b>Fund</b>         | <b>Fund</b>       | <b>Total</b>    |
| <b>Fiscal 2015</b>   |                 |                |                |                     |                     |                   |                 |
| Legislative  |                 |                |                |                     |                     |                   |                 |
| Appropriation  | \$21,294        | \$965          | \$0            | \$6,393             | \$28,652            | \$18,115          | \$46,768        |
| Deficiency   |                 |                |                |                     |                     |                   |                 |
| Appropriation  | 0               | 0              | 0              | 0                   | \$0                 | 0                 | 0               |
| Cost   |                 |                |                |                     |                     |                   |                 |
| Containment  | -836            | 0              | 0              | 0                   | -\$836              | 0                 | -836            |
| Budget   |                 |                |                |                     |                     |                   |                 |
| Amendments   | 139             | 0              | 0              | 500                 | \$639               | 500               | 1,139           |
| Reversions and   |                 |                |                |                     |                     |                   |                 |
| Cancellations  | 0               | 0              | 0              | -1,254              | -1,254              | -567              | -1,821          |
| <b>Actual</b>  |                 |                |                |                     |                     |                   |                 |
| <b>Expenditures</b>  | <b>\$20,598</b> | <b>\$965</b>   | <b>\$0</b>     | <b>\$5,638</b>      | <b>\$27,202</b>     | <b>\$18,048</b>   | <b>\$45,250</b> |
| <b>Fiscal 2016</b>   |                 |                |                |                     |                     |                   |                 |
| Legislative  |                 |                |                |                     |                     |                   |                 |
| Appropriation  | \$21,068        | \$1,006        | \$0            | \$7,146             | \$29,220            | \$18,115          | \$47,335        |
| Budget   |                 |                |                |                     |                     |                   |                 |
| Amendments   | 279             | 0              | 0              | 0                   | 279                 | 0                 | 279             |
| <b>Working</b>   |                 |                |                |                     |                     |                   |                 |
| <b>Appropriation</b>   | <b>\$21,347</b> | <b>\$1,006</b> | <b>\$0</b>     | <b>\$7,146</b>      | <b>\$29,499</b>     | <b>\$18,115</b>   | <b>\$47,614</b> |

Note: The fiscal 2016 working appropriation does not include deficiencies or reversions. Numbers may not sum to total due to rounding.

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## **Fiscal 2015**

The fiscal 2015 legislative appropriation for UMCES was reduced by \$1.5 million. General funds decrease by about \$0.7 million due to two rounds of across-the-board cost containment efforts by the Board of Public Works totaling \$0.8 million almost entirely in deferred facility maintenance, which is offset by \$0.1 million for cost-of-living adjustments.

Other unrestricted funds increased by \$0.5 million to reflect anticipated operating fund spending on a facilities renewal project that was ultimately funded through bonds. Combined with vacant positions and reduced travel, a total of nearly \$1.3 million in other unrestricted funds were canceled.

Restricted funds increased by \$0.5 million due to an expected increase in research grants and contracts. Final research spending was within the original budget, so \$0.6 million in restricted funds were canceled.

## **Fiscal 2016**

To date, the legislative appropriation increased by about \$0.3 million in general funds to restore a 2% pay reduction.

## ***Audit Findings***

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|                              |                                      |
|------------------------------|--------------------------------------|
| Audit Period for Last Audit: | December 2, 2011 – November 11, 2014 |
| Issue Date:                  | May 2015                             |
| Number of Findings:          | 1                                    |
| Number of Repeat Findings:   | 0                                    |
| % of Repeat Findings:        | 0%                                   |
| Rating: (if applicable)      | n/a                                  |

**Finding 1:** Required collection efforts were not performed for outstanding grants receivable.

**Object/Fund Difference Report**  
**USM – University of Maryland Center for Environmental Science**

| <u>Object/Fund</u>                      | <u>FY 15<br/>Actual</u> | <u>FY 16<br/>Working<br/>Appropriation</u> | <u>FY 17<br/>Allowance</u> | <u>FY 16 - FY 17<br/>Amount Change</u> | <u>Percent<br/>Change</u> |
|---|-------------------------|--|----------------------------|--|---------------------------|
| <b>Positions</b>                        |                         |  |                            |  |                           |
| 01 Regular                              | 272.86                  | 273.86                                     | 273.86                     | 0.00                                   | 0%                        |
| 02 Contractual                          | 73.00                   | 73.00                                      | 73.00                      | 0.00                                   | 0%                        |
| <b>Total Positions</b>                  | <b>345.86</b>           | <b>346.86</b>                              | <b>346.86</b>              | <b>0.00</b>                            | <b>0%</b>                 |
| <b>Objects</b>                          |                         |  |                            |  |                           |
| 01 Salaries and Wages                   | \$ 29,300,827           | \$ 29,694,963                              | \$ 30,479,338              | \$ 784,375                             | 2.6%                      |
| 02 Technical and Spec. Fees             | 321,713                 | 645,500                                    | 711,024                    | 65,524                                 | 10.2%                     |
| 03 Communication                        | 292,978                 | 299,889                                    | 299,903                    | 14                                     | 0%                        |
| 04 Travel                               | 957,376                 | 777,904                                    | 777,904                    | 0                                      | 0%                        |
| 06 Fuel and Utilities                   | 2,219,816               | 2,311,037                                  | 2,274,548                  | -36,489                                | -1.6%                     |
| 07 Motor Vehicles                       | 1,124,947               | 1,423,042                                  | 1,424,784                  | 1,742                                  | 0.1%                      |
| 08 Contractual Services                 | 6,756,016               | 8,441,452                                  | 8,145,024                  | -296,428                               | -3.5%                     |
| 09 Supplies and Materials               | 2,115,571               | 1,208,641                                  | 1,208,641                  | 0                                      | 0%                        |
| 11 Equipment – Additional               | 719,122                 | 693,759                                    | 693,759                    | 0                                      | 0%                        |
| 12 Grants, Subsidies, and Contributions | 58,350                  | 104,997                                    | 104,997                    | 0                                      | 0%                        |
| 13 Fixed Charges                        | 1,097,658               | 858,341                                    | 861,409                    | 3,068                                  | 0.4%                      |
| 14 Land and Structures                  | 285,657                 | 1,154,875                                  | 1,154,875                  | 0                                      | 0%                        |
| <b>Total Objects</b>                    | <b>\$ 45,250,031</b>    | <b>\$ 47,614,400</b>                       | <b>\$ 48,136,206</b>       | <b>\$ 521,806</b>                      | <b>1.1%</b>               |
| <b>Funds</b>                            |                         |  |                            |  |                           |
| 40 Unrestricted Fund                    | \$ 27,201,861           | \$ 29,499,031                              | \$ 29,933,093              | \$ 434,062                             | 1.5%                      |
| 43 Restricted Fund                      | 18,048,170              | 18,115,369                                 | 18,203,113                 | 87,744                                 | 0.5%                      |
| <b>Total Funds</b>                      | <b>\$ 45,250,031</b>    | <b>\$ 47,614,400</b>                       | <b>\$ 48,136,206</b>       | <b>\$ 521,806</b>                      | <b>1.1%</b>               |

Note: The fiscal 2016 working appropriation does not include deficiencies or reversions. The fiscal 2017 allowance does not include contingent reductions.