<table>
<thead>
<tr>
<th>Name of Applicant:</th>
<th>Kent Carpenter</th>
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<td>Institution:</td>
<td>Old Dominion University</td>
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<tr>
<td>Signature (President or Chief Academic Officer):</td>
<td>Augustine O. Agho</td>
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<td>Printed Name:</td>
<td>Augustine O. Agho, Provost and Vice President for Academic Affairs</td>
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<tr>
<td>E-mail address:</td>
<td><a href="mailto:aagho@odu.edu">aagho@odu.edu</a></td>
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<tr>
<td>Telephone:</td>
<td>757-683-3079</td>
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Excerpts From Mission Statement

Old Dominion University

The Mission of Old Dominion University is as follows:

“Old Dominion University, located in the City of Norfolk in the metropolitan Hampton Roads region of coastal Virginia, is a dynamic public research institution that serves its students and enriches the Commonwealth of Virginia, the nation and the world through rigorous academic programs, strategic partnerships, and active civic engagement.”

The Mission Support section of the mission statement describes in detail the principles and practices that underlie the University’s undergraduate and graduate teaching, research, and service missions: a sound general educational program; critical thinking; diversity; academic freedom; serving the needs of the local, national, and international communities, including military members and their families; and collaborating with government, industry, and alumni. Finally, the Major Goals of the University are described under the following headings: Students, Faculty, Academic Programs, Teaching, Research, Scholarship and Creativity, Distance Learning, Lifelong Learning, Community Service, Student Life, Alumni, and Quality.

A complete statement of the mission and major goals may be found in the Old Dominion University Undergraduate Catalog 2014-2015 (p. 10-12) and it is available at the following URL: http://catalog.odu.edu/pdf/2014-15-undergraduate.pdf.
Summary of Accomplishments

Professor Carpenter’s efforts to ensure the mission of Old Dominion University “serves its students and enriches the Commonwealth of Virginia, the nation, and the world through rigorous academic programs, strategic partnerships, and active civic engagement” stems from a close integration of teaching, discovery, knowledge integration and service that has been his hallmark since the beginning.

Fresh from college with a Bachelor of Science in marine biology, he chose to serve his country and the world as a U.S. Peace Corps Volunteer using marine science to improve fisheries management in the Philippines. There was not a single certified SCUBA diver in the entire Philippine Bureau of Fisheries and Aquatic Resources when he arrived, so he earned his SCUBA instructorship and learned Tagalog in order to teach his fellow Filipino research biologists how to directly monitor reef fishes. This led to the very important discovery by these fisheries biologists that healthy reefs support more fish diversity and biomass, and, if managed sustainably, can produce both more livelihoods and more protein for their developing country. Similarly, at ODU Dr. Carpenter promotes the enlightened stewardship of natural resources both locally and globally by integrating his research interests with his courses, by mentoring undergraduate and graduate students and early career professionals, and by forging strategic partnerships.

Dr. Carpenter’s research is timely and urgent, given the human cost of climate-change and the pressing need to empower local communities to confront this threat.

Teaching

Since joining ODU as an associate professor in 1996, Dr. Carpenter has developed and taught very popular courses that are fundamental to the undergraduate and graduate Biology programs and to the undergraduate Marine Biology concentration. He cares about students and the quality of their instruction and this has been reflected in his consistently high teacher evaluation scores.

Dr. Carpenter has taught his flagship graduate and upper level undergraduate course in Ichthyology (Biology 420/520) nearly every year for the past 21 years. This is a very rigorous course that is highly valued by students because of the hands-on opportunity to study fish biology in the laboratory and field. The course became so popular that six years ago a second laboratory section was opened to meet demand. He is a dedicated teacher whose enthusiasm for his subject matter is clearly palpable to his students:

- “Dr. Carpenter was one of the best teachers I have had. He was so enthusiastic about the material and I loved learning about a topic that was my main interest and from a person who was so knowledgeable”
- “I love Dr. Carpenter’s love for this class, it really shows when he is teaching.”
- “Dr. Carpenter is an animated and enthusiastic teacher.
- “The class is really fun and very informative.”
- “The instructor loved talking about the material.”
- “He knew his stuff, did a lot of amazing things, and is a pretty amazing individual.”
- “Carpenter was an engaging speaker and his presentation of the material made you want to learn the material. His tests forced you to think more critically of the information that was presented to you.”
Dr. Carpenter received similar accolades from his students for his teaching style and enthusiasm in Marine Biology (Biology 232/331), a cornerstone class for the Marine Biology Concentration. This very popular lecture course was capped at 120 seats to meet high demand. Dr. Carpenter taught the class for 14 years. He taught the course for several years on Teletechnet (an early synchronous distance-learning platform) before he was asked to turn over the class to a junior faculty member so he could concentrate on graduate level courses.

Carpenter developed a course in Marine Conservation Biology to fulfill a need for the Marine Biology Concentration that has been taught yearly since 2012. Anonymous comments on these courses include:

- “Dr. Carpenter is obviously passionate and an authority in his field. He constantly caused us to think critically and made himself available outside of class if we had any questions.”
- “He taught with an interactive learning style which forced us to think and come up with solutions together. First time I have ever had a class that did this and I thought it was very effective.”
- “Dr Carpenter made it very interesting and easier to retain what was learned with the experiences he shared. His system of asking questions also forces you to pay attention and retain a lot during each class.”
- “The instructor was so passionate and knowledgeable, not just textbook wise but from life experiences, that he made it fun to learn and easy to learn. I was initially not very interested in marine biology but since taking this class it has opened my eyes to other fields of biology. This was my first marine biology class but I hope to take another class with Carpenter in the future.”

Carpenter always tries to engage students in the classroom but he is best known among graduate students for the advanced learning methods employed in his graduate level Systematics and Speciation course. Instead of typical lectures, he flipped the classroom to interactively explore the facts, theories and ideas. Students were assigned readings and expected to know the material before coming to class. To ensure they actually read the material, students were sequentially quizzed throughout each class period by cycling through a stack of randomized index cards with a different student listed on each card. On difficult questions students could request Socratic hints or invoke a think-pair-share option to discuss the question with fellow students until the correct answer emerged. The many controversial theories were explored by students either role playing as scientists with opposing ideas or engaging in structured academic controversy discourse using lists of opposing arguments. The success of the course was evident from the overwhelming positive student feedback despite the ‘pain’ this method required. He taught the course once so far to a small class of 12 students (and all but two provided anonymous evaluations). Among these:

- “The interaction and use of the “decks” really put me on the spot to focus and learn the material - finally, a very demanding course! I enjoyed the challenge. I was unfamiliar with the subject matter and truly feel I have a more than fair understanding of the subjects discussed. I was out of my comfort zone .... and that was exactly what I needed. I'm going to miss this course and "teaching" style.”
- “Dr. Carpenter definitely kept us on our toes. We had to know the material when randomly called on. This made you take the time to read and be familiar with material ahead of time...This class was all about critical thinking. The questions everyday were not necessarily straight from the reading but required you to apply your knowledge from the reading and form an answer or opinion. I think this class was excellently structured to
make you think critically. So many classes just make you regurgitate the info, even grad classes. This was a welcome change and great experience.”

- “Dr. Carpenter's personality projects an appropriate mixture of informality and structure that a graduate class should possess. He is able to make the student feel secure in his knowledge of the subject matter.”

In addition to his classroom teaching, Dr Carpenter individually mentored many graduate students. He has served as committee chair and graduated 18 Master’s and 4 PhD students (including 2 Fulbright students from the Philippines) and currently chairs 2 Master's and 2 PhD student committees. In addition, Dr Carpenter has mentored six early career professionals as Post-doctoral Research Associates at ODU. All these graduates were supported by Dr Carpenter’s research funds.

Professor Carpenter has received many awards in recognition of his educational accomplishments. He received the designation of Delta Sigma Lambda Favorite Professor in 1997 in recognition of his superior teaching abilities. In 2008 he received the ODU Provost’s Award for Leadership in International Education. Recognized as an international scholar, Dr. Carpenter was granted a Fulbright Senior Scholar Award for Silliman University in Dumaguete City, Philippines in 2011. Professor Carpenter was designated as an ODU Eminent Scholar in August, 2018.

**Discovery**

Professor Carpenter’s research focuses on how fishes evolved, which factors influence the risk of extinction of marine organisms, and how this knowledge can be used to improve conservation capabilities at regional and global scales. The impact of his research is shown by his remarkable number of publications, citations, presentations, and grants. He has authored 139 publications, including 81 articles in peer-reviewed journals, 13 books, 37 book chapters, 3 book reviews and 5 conference proceedings. These, together with editorial work on 4 multi-volume identification guides to marine resources, have garnered over 13,000 citations and result in an h-index of 44. Since joining ODU he has published seven articles in the prestigious journals *Science* and *Nature Ecology and Evolution*. His 2008 *Science* article (Carpenter, et al, *Science* 321, p560 (2008)) has been cited over 1,000 times! Dr. Carpenter is highly respected as a speaker and has delivered over 50 talks at professional meetings and seminars. Ten of these have been invited talks including plenary presentations at Indo-Pacific Fish Conferences and the Philippine National Academy of Sciences. Since joining ODU in 1997, he has garnered 52 separate institutional awards totalling over $12 million, 96% as senior Principal Investigator. The bulk of these awards (over $7.6 million in 6 awards) come from the most prestigious peer-reviewed funding source in his field, the US National Science Foundation (NSF).

One of the NSF grants Carpenter garnered involves the “Tree of Life” initiative. This research used a wide range of DNA signatures from more groups of fishes than ever previously attempted, to infer the genealogy of all major fish groups. This led to a highly cited collaborative publication that proposed a new classification for fishes that reflected a new view of how fishes evolved. Professor Carpenter also uses fish morphology to understand the evolution of fishes and describe their diversity. In all he has described 14 new species of fishes, including a recent description of a new species of surgeonfish (*Acanthurus albimento*) that was listed by the Smithsonian US National Museum of Natural History as its number one of seven “Favorite Discoveries from 2017.” Carpenter’s work on the evolutionary relationships among fishes is highly respected by his colleagues who have named three species of fishes after him (e.g. *Paracheilinus carpenteri*) including two species since he joined ODU (*Meganthias carpenteri* and *Dentex carpenteri*).
In addition to studying the ancient evolutionary tree of fishes using DNA sequences, Professor Carpenter also studies how present-day populations of Southeast Asian fishes are connected or separated using this genetic code of life. Understanding how marine populations are structured provides information on how species evolve and on how they can be better managed. As Principal Investigator, Professor Carpenter was awarded two separate five-year NSF Partnerships for International Research and Education (PIRE) grants. These grants are very highly competitive and it is extremely rare for any scientist to be awarded two PIRE grants as Principal Investigator. The first PIRE was highly successful with 28 peer-reviewed scientific publications so far that provide new data on how marine populations are structured in the famous Southeast Asian "Coral Triangle." This part of the world is considered the “Amazon Rain Forest” of the marine realm because of its glorious biodiversity. Professor Carpenter’s first PIRE project offered many insights into how this biodiversity evolved and how to better manage it today.

The recently awarded second PIRE uses a novel approach in advanced genomic ‘time travel’ to investigate impacts on marine populations from over a century of extreme exploitation and habitat degradation in the Philippines. It takes advantage of an unusual collection of over 70,000 specimens of marine fishes housed at the Smithsonian Natural History museum that were collected when the US colonized the Philippines after the turn of the 20th century. These specimens were uniquely preserved in high-powered rum which preserves their DNA and enables comparisons of the genetics of species collected in 1908 and 1909 with the same species collected today from the same locations. This project started in late 2017. Its results are eagerly anticipated since it is the very first large-scale comparison of historical and contemporary marine populations. Both of Professor Carpenter’s PIRE projects included opportunities for ODU undergraduates to do summer research in Indonesia and the Philippines. These PIRE projects have already supported nine graduate students and three post-doctoral research associates at ODU with promise for many more before the expected completion of the second PIRE in 2023.

Professor Carpenter has also led the International Union for Conservation of Nature (IUCN) research effort on the extinction risk of marine species since 2005. The IUCN is the oldest and most respected international conservation organization and serves as the United Nations of conservation organizations, including as members over 1300 States, government agencies and NGOs from over 170 countries. The flagship product of the IUCN is the Red List of Threatened Species. Back in 2005 marine species constituted 1.4% of the total number of species assessed under Red List Criteria. Dr Carpenter developed a strategic partnership with the IUCN to lead the global effort to redress the imbalance between terrestrial and marine species on the Red List. Under his leadership, since 2005 the number of marine species assessed has increased from just a couple hundred to over 13,000 or around 14% of total species presently assessed worldwide. This includes mostly marine fishes, but also sea snakes, corals, seagrasses, mangroves, cone snails, sea cucumbers and other invertebrates. This effort included over 60 international workshops (with ODU as a major or primary organizer) and a network of over 550 international marine scientists and conservation experts. In recognition of his highly productive service leading research on extinction risk of marine species, Professor Carpenter received the IUCN’s Species Survival Commission Chair’s Citation of Excellence in 2015.

For this body of research, Professor Carpenter was awarded the ODU College of Sciences Distinguished Research Award in 2013, the university-wide ODU Faculty Research Award in 2017, and was named Eminent Scholar in 2018.
Professor Carpenter focuses his highly productive research program toward knowledge integration through improving the sustainable use of natural resources. For example, his strategic partnership with the FAO led to the surprising discovery that the inland seas of the Philippines harbor the highest concentration of marine species per unit area of any place on the planet. This discovery of a global natural heritage led to a movement for marine conservation in the Philippines which resulted in far more marine protected areas and resource management zones than any other place in Southeast Asia. A recent study showed that his 2005 scientific publication on the Philippine “Center of the Center of Marine Shorefish Biodiversity” is the most frequently cited publication in Philippine marine science. Dr Carpenter presented this study to Philippine President Macapagal Arroyo at a ceremony in 2006 for the signature of Executive Order 578 establishing a National Policy on Biological Diversity that directly quotes Dr. Carpenter’s scientific paper in the Executive Order.

He has also had an impact on international disputes. Carpenter’s history and reputation as a marine scientist in the Philippines led to his appointment as the primary environmental consultant to the Philippine government in their high-profile case against China in the South China Sea. Although better known as a territorial dispute, a large part of the case involved alleged environmental atrocities. Professor Carpenter’s case studies and testimonial speeches in front of a tribunal of five judges during deliberations of the international Permanent Court of Arbitration in the Peace Palace in the Hague, Netherlands in November of 2015 contributed to the court ruling in favor of the Philippines.

Dr. Carpenter’s research has also had significant impact on marine policy in the US and internationally in many different areas. His highly cited Science article on the extinction risk of reef building corals inspired a petition that led to the addition of 20 species of corals to the US Endangered Species list. Findings from this publication were also considered during international deliberations on climate change policy. His work on the conservation status of tunas and billfishes led to his appointment by the IUCN to provide technical advice on the petition to restrict global trade in Bluefin tuna at the United Nations format meeting for the Convention on International Trade in Endangered Species in 2010. The petition did not pass but it served as a wake-up call for regional fisheries bodies to redouble their efforts to manage tunas and billfishes. Professor Carpenter’s work on tunas and billfishes also led to a policy article in Science that showed species with large body sizes and the highest market prices are the most threatened and require additional management effort. The strategic partnership that Carpenter developed with the IUCN that accomplished a dramatic increase in number of marine species assessed under Red List criteria provides a better understanding of the geographic location and hence concentrations of threatened and endangered species at regional and global scales. This allows strategic policy action that decides where to concentrate limited conservation resources. For example, the Red List Assessments completed for marine fishes of the greater Caribbean region that includes the southeastern US identified “Key Biodiversity Areas” that warrant special conservation action.

Dr. Carpenter has spent considerable effort to ensure the lessons learned from his research reach a wider scientific and public audience. Throughout his scientific career he has presented 53 different scientific talks in a remarkable variety of venues with 8 of these as plenary or invited talks. These talks were often adapted for public audiences, including a series of talks initiated and supported by the US Embassy of the Philippines on marine conservation. One of his National Science Foundation projects was highlighted on the National Geographic Channel Wild Chronicles show to explain why the Coral Triangle of Southeast Asia is the epicenter of marine biodiversity. One study he conducted demonstrated how pearl oyster farms in French Polynesia
serve as de facto marine protected areas and was presented as an example of corporate responsibility at a gem trade fair in Hong Kong. These are just a few examples of the outreach activities of Dr. Carpenter’s research.

**Service**

Dr. Carpenter provides service within ODU serving on various committees, the undergraduate recruitment bus tour, providing numerous undergraduate internship opportunities, and developing curricula for the Biology Department’s highly enrolled Marine Biodiversity Concentration.

In addition, Professor Carpenter’s professional service producing knowledge products that help sustainable use of natural resources nationally and internationally is truly extraordinary. Early in his ODU career, Dr. Carpenter monitored local zooplankton as part of the yearly report card of the health of the Chesapeake Bay in Virginia. For five years prior to joining ODU, Dr. Carpenter worked for the United Nations Food and Agriculture Organization (FAO) in Rome, Italy producing identification guides to marine resources for fishery purposes. He forged a strategic partnership between ODU and the FAO to continue this work at ODU. This resulted in senior editorship and primary authorship of 13 volumes of marine biodiversity identification guides for the southeastern United States and the greater Caribbean region, the western Pacific Ocean, the eastern Tropical Atlantic Ocean, and two additional independent biodiversity guides for the Persian Gulf and Namibia. Dr. Carpenter’s reputation for producing these guides led to an invitation to co-author “A Field Guide to Coastal Fishes from Maine to Texas” produced by John Hopkins University Press in 2011, now in its third print run is the most popular fish guide for fisheries scientists, ichthyologists and fishermen on the east coast.

The production of these multiple biodiversity guides also resulted in the invitation by the IUCN for Dr Carpenter to lead their Global Marine Species Assessment. This produced Red List Assessment of over 13,000 marine species that are freely available on the IUCN Red List website and are frequently used and cited by marine conservation biologists as a valuable resource gauging the conservation status of marine species globally.

Dr. Carpenter’s Virginia and international research in ichthyology and marine conservation biology has not only provided valuable professional service, it also enhances the profile and reputation of ODU and directly helps fulfill its goals as an academic institution. ODU’s Mission and Vision statements mandate research that enriches Virginia and commands international recognition. On several occasions Dr. Carpenter represented ODU at notable international events. For example, as mentioned above, he was chosen as the primary environmental expert to testify on behalf of the Republic of the Philippines in their case against the Peoples Republic of China for the “World Court”. He is listed in the successful award document and was introduced to the Tribunal of five judges prior to his testimonial speeches as “Professor Kent E. Carpenter of Old Dominion University in Norfolk, Virginia, United States.” He was similarly introduced to Presidents of the Philippines on different occasions, and to the Emperor and Empress of Japan at their Tokyo Imperial Palace during a celebration of the Emperor’s 10th anniversary of his ascendency to the throne (the Emperor is also an ichthyologist and Dr. Carpenter was one of the few American ichthyologists asked to participate in the celebration). Professor Carpenter also helped host a former Filipino President, Fidel Ramos (whom he met as a Peace Corps volunteer), at ODU to bring an international event to campus.

It is perhaps not easy to gain recognition on the world stage as an ichthyologist, but passion and drive have brought this recognition to Dr. Carpenter, to ODU, and to Virginia.
Personal Statement

New acquaintances at parties or gatherings often ask, “What is your work?” As an educator, I typically challenge vocabulary knowledge and try to get a conversation going with, “I am an ichthyologist!” If needed, I wait a few moments to see if any lights go on and if not follow up with, “I study fish. However, I really haven’t worked at all since finishing graduate school in 1985. I very much enjoy what I do and getting paid for it is a little embarrassing.” At my age I am also frequently asked by family and friends “When do you plan to retire?” And again, my answer is an emphatic “No plans to retire at all, ever!! I am having way too much fun with what I do. And besides, I was just awarded 4.6 million dollars by the US National Science Foundation to carry out one of the coolest five-year research projects that just about any marine biologist could imagine.” I love what I do. I love my research, I love teaching, I love mentoring and interacting with students, and I love making good things happen. The key to my productive career has been my passion for marine science and for making a meaningful, positive impact on the world.

I decided at an early age that I had to be a marine biologist and a little later realized that I cared a lot about man’s impact on nature. Thanks to enlightened mentors in college I also realized that the key to mitigating man’s impact when interacting with and exploiting nature was ensuring sustainability. We rely on ecosystem services for the air we breathe, the food we eat, and for our economic success. Our interaction with nature requires wise choices that are beneficial to both man and nature.

After college, a natural extension of my career passion, learning experiences, and desire to do something worthwhile, was to accept a position as a US Peace Corps Volunteer in fisheries management at the Philippine Bureau of Fisheries and Aquatic Resources. I ended up with the best Peace Corps job that ever was and ever will be. At the age of 23 and just a B.S., I ended up in charge of the Bureau’s Coral Reef Research Unit. My responsibility was the reefs of the nation’s entire tropical archipelago of over 7,000 islands and a coastline equivalent to that of the US! I had to build the unit from the ground up. Since there were no certified divers in the entire Bureau, I wangled training to become a certified SCUBA instructor so that I could train fisheries biologists. I ended up managing a team of diving biologists and support staff, and a budget to go anywhere in the Philippines to better understand the link between coral reef health and fisheries production. The Philippines was a paradise for a budding ichthyologist with the highest concentration of marine fish species per unit area of any place on the planet (as I later discovered). After over 3 years as a Volunteer I ended up with good evidence to convince the Philippine government that coral reefs need to be healthy for sustainable fisheries exploitation, enough data for several scientific publications, a full scholarship to graduate school through the East-West Center, and a new species of fish named after me by the world’s foremost tropical ichthyologist who became my doctoral mentor at the University of Hawaii.

The international experience as a US Peace Corps Volunteer shaped my early career and led to most of my opportunities and adventures as a scientist and, most importantly, enhances my role as an educator at Old Dominion University. After graduate school I was a Post-Doctoral Research Fellow of the Hawaii Institute of Marine Biology working in the Philippines and Thailand. I then took a position as a coral reef Scientist at the Kuwait Institute for Scientific Research. I was caught in Kuwait during the Iraqi invasion in 1990, endured amidst fighting and military occupation for two weeks, and finally commandeered an abandoned four-wheel drive vehicle and drove across the desert dodging Iraqi tanks and troop concentrations. I escaped into Saudi Arabia a day before the order was given to round up and detain all western foreign nationals.

As a refugee in Virginia I was fortunate to get an Associate Research Scientist position at Old Dominion University. I was then hired away from ODU to manage the marine biodiversity unit in
the Fisheries Department of the United Nations Food and Agriculture Organization (FAO) in Rome, Italy. My position at FAO as a Senior Fishery Resource Officer was a dream job allowing me to apply my passion for marine biodiversity toward improved fisheries management while living in a fascinating city. There was only one other position I would have accepted anywhere in the world and that was the one I was offered back at ODU in 1996.

I was attracted to the ODU academic position in order to return to primary research in the laboratory and the field rather than synthesizing other scientists’ research as I was doing at FAO. I was also hired to do exactly the type of research most interesting to me: understanding the origins and conservation of marine biodiversity. This provided opportunities to engage in research important directly for Virginia and to enrich our knowledge of the world. My initial research program helped to monitor and understand the health of the Chesapeake Bay in Virginia. I also continued projects that were started at FAO which provided a broader international context. This eventually led to ODU becoming the headquarters for the International Union for Conservation of Nature (IUCN) Global Marine Species Assessment to understand the global extinction risk of marine biodiversity. The IUCN is the preeminent ‘United Nations’ of conservation organizations whose flagship product is the Red List of Threatened Species and I was honored that they chose me to lead this new initiative at ODU starting in 2005. At around the same time my work with the IUCN began, I was also honored to be awarded the first of two prestigious multi-million dollar US National Science Foundation Partnerships for International Research and Education (PIRE) projects. I proposed to decipher DNA sequences, the genetic code of life, using both basic and advanced methods (similar to what was used to sequence the human genome) of a wide range of marine species in Southeast Asia. This provides information on how marine populations are connected or separated across the region. This continued my primary research interest to understand how marine species evolved and how best to conserve marine biodiversity in areas of intense fishing pressure and habitat degradation. Juggling the huge IUCN and PIRE projects is challenging but is possible because I managed to recruit several very competent post-doctoral research assistants and a large cohort of excellent graduate students to ODU.

In addition to fulfilling my research dreams at ODU, I found a previously undiscovered passion: teaching and mentoring students. Interacting with students at ODU taught me that I was far from alone in my passion for marine science and my desire to ensure sustainability. Students listen intently, in and out of class, to my local and international research experiences. They often approach me for career advice and research opportunities. My new passion is to nurture these interests in students to continue this vital work well into the future. This has led to a steady stream of undergraduate and graduate students and post-doctoral research associates working in my lab and in the field. My extensive international research and travel have been my most valuable educational experience and bringing that experience to students has been the hallmark of my research program. My students and postdocs have participated in research in 34 nations so far. I am proud that they have learned global lessons and been inspired to pursue careers in marine science, resource management and conservation biology.

I believe in the value of integrating an active research program with educational experiences both in the classroom and in the field. I am grateful to ODU for the opportunity to pursue my passion for marine science and conservation biology and to pass this interest on to a new and diverse generation of students in Virginia.
Abbreviated Curriculum Vitae

EDUCATION:

EXPERIENCE:
2005-Present: Professor of Biological Sciences, Department of Biological Sciences, Old Dominion University.
1996-2005: Associate Professor of Biological Sciences, Department of Biological Sciences, Old Dominion University.
2005-Present: Manager, International Union for Conservation of Nature Global Marine Species Assessment/Marine Biodiversity Unit (funded research at ODU.)
1991-1996: Senior Fishery Resources Officer, Food and Agriculture Organization of the United Nations, Rome, Italy.
1990-1991: Associate Research Scientist, Applied Marine Research Laboratory, Old Dominion University, Norfolk, Virginia.
1987-1991 Associate Research Scientist, Mariculture & Fisheries Department, Kuwait Institute for Scientific Research.

AWARDS:
2018 Eminent Scholar, Old Dominion University
2017 Faculty Research Award, Old Dominion University
2015 Species Survival Commission Chair’s Citation of Excellence
2013 College of Sciences Distinguished Research Award, ODU
2011 Fulbright Senior Scholar Award, Silliman University Dumaguete City, Philippines
2011-present Fellow, California Academy of Sciences
2008 Provost’s Award for Leadership in International Education, ODU
2007-present Research Associate, Smithsonian National Museum of Natural History
1997 Delta Sigma Lambda Favorite Professor, ODU
1979-1985 East-West Center Degree Participant Grant

TEACHING (ODU):
Biol 420/520 Ichthyology
Biol 232, 331 Marine Biology
Biol 731/831 Systematics and Speciation
Biol 496/596 Marine Conservation Biology

PUBLICATIONS - 81 refereed journal articles, 13 books, 37 book chapters, 15 conference articles and 10 technical reports with over 13,500 citations on Google Scholar including principal recent publications (*Corresponding Author if not first author or Lab Head):


Carpenter, K.E., L.M. Chou. 2015 Environmental Consequences of Land Reclamation Activities on Various Reefs in the South China Sea, Expert Report for Permanent Court of Arbitration case Republic of the Philippines vs Peoples Republic of China (TECHNICAL REPORT).


**RESEARCH PAPERS PRESENTED AT PROFESSIONAL MEETINGS** 52 including recently:
Carpenter, K.E. The Center of the Center of Marine Biodiversity and the Philippine PIRE projects (Plenary). Advances in Philippine Marine Research, Silliman University, 2018.


**GRANTS AWARDED (ODU)**, 52 separate grants totaling $12,163,648 ($11,929,650 as Principal Investigator) including:

Letters of Support (Excerpted)

Current Students

I have worked for Dr. Carpenter for nearly 7 years now, first as a master's student, and now as a full-time research associate. I am grateful to call him both a mentor and a friend. This relationship has resulted in my exposure to parts of the world I never would have considered, and broadened my depth of knowledge of fish to include aspects of biology, conservation and humanity. His undying optimism and ambition has taught me the following lessons I find invaluable to both my career and outlook on life: 1. Think globally; 2. Work hard, then reward yourself; 3. When travelling, try the local food; 4. There is no such thing as an ugly fish; 5. During the editing process, search for three words to remove from each sentence; 6. Don't forget to laugh.

Christi Linardich, M.S. ODU, Research Associate

I first met Dr. Carpenter in the fall of 2015 when I took his Ichthyology class at Old Dominion University. He was, hands down, the most engaging professor I had during my undergraduate degree. His enthusiasm of the class content played a large role in why I became so interested in studying fishes, ... Dr. Carpenter gave me the incredible opportunity to work with him on my Master’s degree. He has introduced me to great challenges, but has always believed in my ability to overcome and accomplish them. ... He has been an amazing advisor to work with and learn from; because of his efforts, a number of doors have been opened that have allowed me to learn and grow into a budding research scientist.

Tiffany Birge, M.S. student, ODU

Former Students

Dr. Carpenter made a difficult class conquerable through his passionate lectures and research. ... We learned from his stories, whether they were light hearted tales about fish jumping into boats, or inspiring stories about watching schools of fish surround him in the open water. His passion for marine life easily rubbed off on me and my peers. ... Whether he was across the world doing research in the Philippines or in his office in Norfolk, I could count on him to be there for me to answer any and all of my questions regarding Ichthyology.

Christiana Bautista, B.S. ODU, 2017

He is a perfect example of what every professor should strive to be like; he’s kind, funny, fair, and places his students as his highest priority. He is a professor who has helped me immensely through both his coursework and by allowing me to gain experience in his lab.

Jay DeMarco, B.S. ODU, 2018

Dr. Carpenter has had a tremendous impact on my academic career; I am a first generation college student, and he empowered me to pursue my dreams. I am now in my last semester completing an MSc at UBC in Vancouver.

Emilie Stump, B.S. ODU
He is one of the best teachers I have had – getting students engaged in his lectures and listening to stories of his personal experiences that helped us remember the lessons and appreciate the class better. … He provided me with independence to manage the Euteleost Tree of Life project, which supported my PhD degree. … The diverse set of expertise, including leadership and management skills, I developed while a student in his lab helped me secure a more permanent position I currently have at the Great Lakes Bioenergy Research Center.

He has demonstrated extraordinary commitment and effectiveness as a mentor to me and other students.

Millicent Sanciangco, PhD ODU, Core Facilities Coordinator, Great Lakes Bioenergy Research Center

Colleagues

When it comes to looking at marine species, Kent is a world leader in developing our knowledge. His 2008 *Science* paper is one I quote frequently and is a set reading for my conservation class. Assembling data for the oceans is so much more difficult.

Of course, this is not his only contribution in this area. He’s been involved with an exceptional set of papers that deal with the various marine animal and plant taxa and across all of the world’s oceans. To do this one needs excellent natural history — one must know the species — but also the ability to assemble and analyse those data to show large-scale patterns. Kent does that very well indeed.

One has to comment about how Kent gets to where he is today — via Kuwait and the unfortunate events there and a long stint at FAO. Those could have been interludes which would dampen any career. He turns them into experiences that produce well-cited papers and experiences he’s used to produce the work I’ve already mentioned. (He has more citations from FAO publications than anyone else I know.)

Stuart Pimm, Doris Duke Chair of Conservation Ecology, Duke University

I first would like to mention something that might seem insignificant, but to me is very important. I have seen Dr. Carpenter in the field, at fish markets in Indonesia. The diversity of fishes is intimidating, to say the least. For Kent, it is an enjoyable exercise, as he can identify anything instantly. His passion is palpable, and he likes to share it with his students.

A major issue that has been vexing biogeographers since Wallace is the placement of the center of the coral triangle and its explanation. Kent Carpenter has been a major player in this long-standing debate. He has approached this question from two angles. The first one is simply the facts: where can you find the highest diversity of marine fishes? This question is not simple to answer, far from it, as it requires a very large number of surveys in a complex environment. His answer is a region within the Philippines. This placement has been heavily criticized (always the hallmark of a good idea), yet it has stood the test of time so far (the hallmark of a correct idea). Second, Kent has tried to get at the more difficult issue of providing an explanation for this location.

While science is important, the involvement of scientists in the public and political debate is just as, or maybe more, important. With Kent Carpenter’s experience at the FAO and his thorough knowledge of the local coral reef fauna and scientific literature covering the region, he got involved in the highly political issue of island exploitation in the South China Sea. The results, in no little part due to his efforts, were positive (in my opinion), and China’s illegal exploitation was foiled. I followed the trials and saw Kent’s contribution to the debate and was very proud that a scientist would have the poise and composure necessary to stand against a massive barrage of interests. In my opinion Kent Carpenter is best example of a true Scholar in the most prestigious sense of the term.

Giacomo Bernardi, Professor of Biology, UC Santa Cruz
His research has a high international profile and he has an outstanding record of external funding. He launched his career with an impressive series of papers related to classification of fishes in general. His impact extended beyond his initial study group due to his philosophical recommendations for classifications in general. He has my respect for that although I did not agree with his perspective. His later work began to emphasize marine fish conservation. Eighty peer-reviewed journal articles, 13 books, 37 book chapters, and edited three multi-volume book sets. Four of his articles are in Science – broad reach. Dr. Carpenter’s impact in the area of marine fish conservation is his greatest legacy. His work with the IUCN has increased his reach beyond the world of fish systematics and evolution. This interest combined with his contributions to fish population genetics and diversity, as well as his vision, led to his successful bids for the NSF PIRE awards. Dr. Carpenter’s hugely successful track record in external funding can also be credited to his drive, persistence and opportunism.

Frank Pezold, Dean of Science and Engineering, Texas A&M University, Corpus Christi

Professor Carpenter first started a high-profile career in conservation biology when he started managing the nascent IUCN Global Marine Species Assessment (GMSA) in 2005. I wanted him to quit his job at ODU and come work for me in the IUCN but your Provost at the time convinced us that it would be better to keep him at ODU and bring the GMSA to ODU as funded research. This arrangement has worked extremely well. Professor Carpenter has advanced the field of marine conservation biology exponentially since that time through his work with IUCN Red List Assessments. The IUCN Red List of Threatened Species is the flagship knowledge product of IUCN and is the basis for biodiversity conservation at global, regional and local scales. The representation of marine species assessed under IUCN Red List Criteria was woefully inadequate when Professor Carpenter began in 2005 with only a few hundred species assessed representing about 2% of the total species assessed. Since he began, the total number of marine species assessed has increased to nearly 13,000 species, thus increasing representation on the IUCN Red List to nearly 15%!

Professor Carpenter’s achievements in marine conservation biology go well beyond the Red List Assessments themselves as these have been widely used in biodiversity conservation action. One of Professor Carpenter’s first priorities in the GMSA was to complete Red List Assessments of the reef-building corals of the world and these results have had wide global impacts. I worked with him to produce a Red List Index from these coral data and the results came out in a very highly cited Science paper and have been used in other highly cited papers and global biodiversity policy. For example, they are used in the Sustainable Development Report and are relevant to the Global Biodiversity Outlook and reporting for the 2020 Aichi Target 10 of the Convention for Biological Diversity Strategic Plan for Biodiversity. The also enabled the discussion of global climate change metrics relating to oceans. These coral Red List Assessments were also the direct basis for a petition to the US Government that resulted in around 20 species of corals being listed under the US Endangered Species Act.

He has made ODU an essential institutional reference in global marine biodiversity science. He is highly motivated and his achievements in marine conservation biology warrant highest recognition.

Simon Stuart, Conservation Director, Synchronicity Earth and former Chair, IUCN Species Survival Commission
Additional Materials

In recent years, Kent set out to correct the imbalance of marine versus terrestrial and freshwater assessments of the threats to the continued survival of organisms in these different environments. The procedures developed by the IUCN (International Union for the Conservation of Nature) to assess species for inclusion on the IUCN Red List were developed by specialists working with terrestrial and freshwater taxa and some of their procedures do not work as well with marine organisms. To correct this imbalance, Kent has secured large sums of funds from private and public sources to conduct workshops to assess the threat status of diverse groups of marine organisms – corals, mangroves, seagrasses, hagfishes, tarpons & ladyfishes, and sea snakes as well as assessments of fishes from many different regions – the eastern tropical Pacific, Persian Gulf, Philippines, Gulf of Guinea, and Gulf of Mexico. The complex work of identifying sites for workshops, selecting a wide variety of participants, and producing the background information was assigned to ODU students at various educational levels. From participation in many of these workshops, I can attest to the competent and dedicated efforts of these students under Kent’s leadership. Many have gone on to careers in conservation and other areas of marine biology. The assessments resulting from these workshops have been and are being published in a wide variety of leading journals.

In addition to these inspiring achievements in the realm of marine conservation, Kent has also carried on a highly productive career in systematic ichthyology, partnering with a wide array of other ichthyologists to describe new species of fishes, revise genera and families, and test zoogeographic hypotheses all the while training students.

Bruce B. Collette, Ph.D., Chair, IUCN SSC Tuna & Billfish Specialist Group and Senior Scientist (emeritus), National Marine Fisheries Service Systematics Laboratory

When I was a senior in college, I took his marine conservation course and soon after, he gave me the opportunity to intern in his lab. … The knowledge and experience I have gained from working with him have broadened my horizons and inspire me to reach farther than I thought I could. Kent’s knowledge, experience, and passion for marine conservation are highly motivating and were major factors in my decision to pursue a master’s degree in his lab. I feel very fortunate to have an advisor and mentor who not only has a world-renowned reputation as an impactful marine conservation biologist and ichthyologist, but who always has an open door policy and unwavering confidence in his students.

If not for him, I would not be on the path that I am today.

Claire Gorman, M.S. student, ODU

Anonymous student course evaluation comments:

- “This was my favorite class. I plan on studying fish so this class was extremely informative and I am so thankful I took it.”
- “All his experiences are so interesting, he is so passionate about fish, it made me even more than I already am!”
- “Carpenter’s attitude toward the subject and his enthusiasm, and most importantly his stories! I always left his class happy to have the major I do.”
- “I like that the material was extremely interesting and that my instructor had experience and stories to share for most topics. His stories truly help the learning experience because it allowed me to connect to the topics at hand. I also love that the instructor was enthusiastic for the material, no matter the subject. I also like that the instructor provided relevant and entertaining, yet educational videos throughout the lectures. Lastly, I appreciate his active work in the field and find it remarkable of how successful he has been throughout his career.”
• “I liked that Dr. Carpenter was enthusiastic, knowledgeable and excited to share his experiences and knowledge with his students. He has made me more excited to learn about fishes and is among my favorite professors at ODU.”
• “I love Dr. Carpenter's enthusiasm and obvious passion for ichthyology; it definitely makes the class that much more interesting. His personal experiences also make specific concepts very memorable and stick with me past that one day in class.”
• “Dr. Carpenter is so nice, understanding, and willing to help! Love him as a teacher.”
• “I enjoyed how passionate my instructor was over the material.”
• “Carpenter is very upbeat and willing to explain all information presented in a polite and helpful manner. Just an awesome professor!”

Graduate course comments:
• “The instructor is very enthusiastic, passionate, and knowledgeable. He is a model conservation biologist”
• “Kent Carpenter is an excellent instructor and scientist. His expertise and knowledge based made the class very interesting and informative.”

Comments from the online RATEMYPROFESSORS.COM:
• “Seriously hands down best professor I've ever had. Freaking amazing, cares about his subject matter and students, will bend over backwards to help you. He'll also just talk to you about whatever you want after class at office. Really, really cool dude. I would take any class he taught without any hesitation. Do yourself a favor and take him!”
• “A really good professor, passionate about his topics.”
• “He's a great professor, but WOW his class is hard.”
• “I took Bio 520 with him and it was the best class that I have had both as an undergrad and grad. He is entertaining and fun. There is a lot of material to learn and you have to attend class to do well. But it is worth the effort.”
• “Dr. Carpenter is an amazing teacher. The course is tough, but only in the sense that there is so much material to study and memorize. He emphasizes over and over what he will stress on tests. I suggest going to lecture because not only is it informative, but it is actually fun, he has a good sense of humor.”
• “I took Ichthyology with him and it was excellent. Very enthusiastic, knows his stuff, and he makes you feel comfortable asking questions in class.”

Hauling in a trawl with ichthyology students on the Chesapeake Bay
With the Philippine Delegation at the World Court in the Hague, Netherlands. Carpenter sits between Senior Supreme Court Justice Carpio and territorial expert witness, Dr. Schofield.

Carpenter in the center of Table 2 of the Philippine delegation during a testimonial speech in front of the tribunal of five judges in the Peace Palace in the Hague.

With the Emperor of Japan and other prominent ichthyologists.

With Philippine President Fidel Ramos at the ODU Filipino-American Center after a lecture given by Dr. Carpenter on the Philippine "Center of the Center" of marine Biodiversity.