Dr. Katherine Elliott Bemis

Research Zoologist & Curator of Fishes
NOAA Fisheries National Systematics Laboratory,
Office of Science & Technology
Vertebrate Zoology, National Museum of Natural History,
Smithsonian Institution
10th & Constitution Avenue, Washington, DC 20560 USA
bemisk@si.edu; katherine.bemis@noaa.gov

25 February 2022

To the Selection Committee for the Robert H. Gibbs, Jr. Memorial Award for Excellence in Systematic Ichthyology:

I write to nominate **Dr. David (Dave) George Smith**, Research Associate at the Smithsonian Institution National Museum of Natural History (NMNH), Washington, DC for the Robert H. Gibbs, Jr. Memorial Award for Excellence in Systematic Ichthyology. In preparing the nomination, I discussed Dave's accomplishments with others in the NMNH Fishes community, including Carole Baldwin, Bruce Collette, Dave Johnson, Tom Munroe, Lynne Parenti, and Diane Pitassy. All reviewed and added comments to the letter provided here and indicated their support and encouragement for Dave to be recognized with the Gibbs Award.

Dave was born in Buffalo, New York, and was awarded his BS in Vertebrate Zoology at Cornell University (1964), where he studied with Ed Raney, and his MS and PhD from University of Miami (1967, 1971, respectively), as a student of Dick Robins. Before coming to NMNH, Dave was an Instructor at the University of Texas, Galveston for 10 years and then a Research Associate at the Museum of Comparative Zoology, Harvard University for three years. From 1989–2012, Dave worked as a Museum Specialist at NMNH before retiring. For much of his career, Dave did not have a research position, yet in addition to his formal duties in the various positions he held, he maintained an incredible level of research productivity, as strong a career as many of those who are afforded the opportunity to conduct full-time taxonomic research. Dave has had and continues to lead an exceptionally distinguished career in systematic ichthyology, which I will outline below.

Dave is the world's taxonomic authority on eels (Anguilliformes), a group that includes >1010 species (Fricke et al. 2022). He has published **> 140 publications** as of February 2022 (see Smith CV, attached). He has described **one new family (Colocongridae), eight new genera, and 74 new species** (Table 1). Remarkably – a testament to his taxonomic skill – **all taxa he has described are currently valid** (Fricke et al. 2022).

Perhaps Dave's greatest systematic contribution is preparing original content and editing the two volumes (Volume 1, adult eels, Volume 2, Leptocephali) of Part Nine of the *Fishes of the Western North Atlantic* (FWNA) series. One of the most widely used references for fishes of the region, FWNA includes comprehensive species accounts that cover taxonomy, nomenclature, identification, biology, distribution, and illustrations for each species. Strang (1990) considered the eel volumes to be the most comprehensive piece of literature on the subject, and Marshall

(1990) wrote in his review "apart from the Ophichthidae and Serrivomeridae, all other leptocephali are in the hands of David Smith whose dedicated studies have resulted in eels now being on the map."

As part of his systematic collaborations, **Dave has published with 44 scientists from > 15 countries**, including: Australia, Brazil, Canada, Denmark, Germany, India, Israel, Japan, Malaysia, New Zealand, Russia, Saudi Arabia, South Africa, Taiwan, and USA. Many of these collaborations began because of Dave's global recognition as the eel authority and from scientists from around the world reaching out to seek his input. These contacts often developed into collaborations in which Dave combined his knowledge of eel taxonomy with the first-hand knowledge from people living in the region the eel is native to. As Tom Munroe stated, and I have experienced first-hand as well, "Dave shares his knowledge regarding rules of nomenclature as they apply to issues raised by colleagues and students visiting the museum. He willingly gives his time to answering these questions and conducts his own research to gather the information needed to resolve the questions at hand."

Dave's contributions to systematic ichthyology far exceed his publications. As Diane Pitassy, Fishes Collections Manager at NMNH, said "Dave has always been very generous in providing eel identifications to all colleagues. I've never heard Dave say no, only smile and say 'Yes, I should probably have a look.'" At NMNH, Dave fully inventoried the Anguilliformes, including cataloging **8,600 (25,320 specimens) of the 13,900 overall eel lots (40,500 specimens).** As part of this process, Dave reidentified nearly all of the museum's holdings for eels, the largest collection of eels in the world. Dave has also studied and identified eels in many of the major fish collections of the world, including those in Philadelphia, Boston, Copenhagen, London, Paris, Los Angeles, Honolulu, Taipei, and Wellington. Despite being a renowned eel expert, Dave's non-eel identifications are also always spot on.

Dave participated in extensive field work and collecting trips, including trawling from 1964–1977 and diving 1975–2009. I have not had the opportunity to work with Dave in the field, so I asked NMNH colleagues who have.

Carole Baldwin wrote:

> "I conducted fieldwork with Dave beginning in 1992, initially working on larval fishes nearly annually at the Smithsonian's field station at Carrie Bow Cay, Belize, and then also in the late 1990's and early 2000's in many locations as part of my efforts to provide a comprehensive DNA barcode library and tissue/voucher collection for shorefishes of the western Atlantic and Caribbean Sea. **Dave was nothing short of phenomenal in the field, and he was among the most competent and reliable field partners I've ever worked with.** Few things ruffle him, including, as he aged, working in the water on scuba or snorkel all day and then working until 2-4 AM in the lab after dinner. Day after day after day. His knowledge of fishes and fish literature is extraordinary, and his curious mind and passion for solving identification puzzles was exactly what the projects needed. Although initially we tried with minimal success to identify Belizean larval fishes by capturing living larvae and rearing them to an identifiable size, thanks to our collaboration with Lee Weigt and his introducing us to DNA barcoding, we dramatically

increased the success rate of species identification. This involved creating a database of DNA sequences for adult fishes, which not only provided the necessary reference library for identifying larvae but revealed dozens of existing taxonomic issues in the Caribbean fish fauna. Our subsequent field efforts in Belize, Curacao, Florida, Tobago, Turks & Caicos, and more provided invaluable specimen and tissue collections and resulted in numerous publications for which he was an author describing larvae, new species, and resolving taxonomic issues in cardinalfishes and gobies among others. The extensive Caribbean fish-tissue and DNA-extraction collections he helped build at NMNH have subsequently been used by scientists globally, including in many high-impact papers on fish phylogeny.

I'll end with a little-known fact: Dave has a fabulous sense of humor, which most people don't know about because he is very quiet. But let me just say that making your fellow field mates laugh at 2 in the morning when you're all exhausted is a valuable talent!"

Bruce Collette remembers that during their time together in Tonga, Dave carefully spread out eels to preserve them straight, not curled up in a bottle, which takes more time but makes subsequent examination, x-raying, and photography much easier. This is representative of the care that Dave puts into his collections.

Dave is well-known to the American Society of Ichthyologists and Herpetologists (ASIH), and has served as the Ichthyology Historian since 2005. In this position, Dave documents the contributions of dedicated ASIH members in accounts published in the Historical Perspectives section of the society's journal. Some accounts are for well-known members of ASIH, such as Bruce Collette (Hilton and Smith, 2014) but others are lesser-known unsung heroes of the society, such as Arthur Wilbur Henn, who, through careful study, Bowman and Smith (2015) demonstrated was crucial to the society remaining solvent during the Great Depression. Dave writes in a way that makes history interesting and accessible, and with details that allow readers to get to know the achievements and personal histories of members of our society.

Finally, in his unassuming way, Dave is as exceptional mentor. Since I was an undergraduate intern at NMNH, beginning in 2013, Dave made time to mentor me. Together we have enjoyed many lunches at the NMNH Museum Support Center (MSC). During these lunches, he recounted stories of discovery from the field and from the museum's shelves – stories that made me seek those experiences myself. When I began my position at NOAA National Systematics Lab based at NMNH in 2019, Dave spent time to orient me to many of the resources the museum has to offer, and still always stops by my office to see if I need anything whenever we are both at MSC.

As anyone who interacts with Dave knows, he is quiet and understated but exceptionally kind, talented, and deserving of recognition for his outstanding career in systematic ichthyology. I give Dave my highest recommendation for the Gibbs award. Please contact me with any questions.

Sincerely,

Dr. Katherine Elliott Bemis

Attachment: CV of Dr. David (Dave) G. Smith (last updated January 2021).

Table 1. Eight genera and 74 Species described by Dr. David (Dave) George Smith. Note all are currently valid.

Genera	Authors	Year	Status
Robinsia	Böhlke & Smith	1967	Valid
Catesbya	Böhlke & Smith	1968	Valid
Acromycter	Smith & Kanazawa	1977	Valid
Blachea	Karrer & Smith	1980	Valid
Linkenchelys	Smith	1989	Valid
Kenyaconger	Smith & Karmovskaya	2003	Valid
Castleichthys	Smith	2004	Valid
Rostroconger	Smith	2018	Valid
Robinsia catherinae	J.E. Böhlke & Smith	1967	Valid
Catesbya pseudomuraena	J.E. Böhlke & Smith	1968	Valid
Ariosoma coquettei	Smith & Kanazawa	1977	Valid
Bathycongrus bullisi	Smith & Kanazawa	1977	Valid
Bathycongrus polyporus	Smith & Kanazawa	1977	Valid
Gnathophis bathytopos	Smith & Kanazawa	1977	Valid
Gnathophis bracheatopos	Smith & Kanazawa	1977	Valid
Gnathophis tritos	Smith & Kanazawa	1977	Valid
Japonoconger caribbeus	Smith & Kanazawa	1977	Valid
Parabathymyrus oregoni	Smith & Kanazawa	1977	Valid
Avocettina paucipora	Nielsen & Smith	1978	Valid
Nemichthys larseni	Nielsen & Smith	1978	Valid
Blachea xenobranchialis	Karrer & Smith	1980	Valid
Nettastoma syntresis	Smith & J.E. Böhlke	1981	Valid
Nettastoma solitarium	Castle & Smith	1981	Valid
Nettenchelys exoria	J.E. Böhlke & Smith	1981	Valid
Nettenchelys gephyra	Castle & Smith	1981	Valid
Nettenchelys inion	Smith & J.E. Böhlke	1981	Valid
Nettenchelys pygmaea	Smith & J.E. Böhlke	1981	Valid
Neenchelys retropinna	Smith & J.E. Böhlke	1983	Valid
Acromycter atlanticus	Smith	1989	Valid
Heteroconger luteolus	Smith	1989	Valid
Xenomystax congroides	Smith & Kanazawa	1989	Valid
Xenomystax austrinus	Smith & Kanazawa	1989	Valid
Hoplunnis megista	Smith & Kanazawa	1989	Valid
Hoplunnis similis	Smith	1989	Valid
Saurenchelys cognita	Smith	1989	Valid
Linkenchelys multipora	Smith	1989	Valid
Gymnothorax parini	Collette, Smith & E. B. Böhlke	1991	Valid

Gymnothorax annulatus	Smith & E. B. Böhlke	1997	Valid
Gymnothorax mccoskeri	Smith & E. B. Böhlke	1997	Valid
Gymnothorax randalli	Smith & E. B. Böhlke	1997	Valid
Uropterygius xenodontus	McCosker & Smith	1997	Valid
Uropterygius golanii	McCosker & Smith	1997	Valid
Carrigobius amblyrhynchus	Smith & Baldwin	1999	Valid
Enchelycore nycturanus	Smith	2002	Valid
Chiloconger philippinensis	Smith & Karmovskaya	2003	Valid
Kenyaconger heemstrai	Smith & Karmovskaya	2003	Valid
Castleichthys auritus	Smith	2004	Valid
Pteropsaron springeri	Smith & Johnson	2007	Valid
Bathycongrus trimaculatus	Karmovskaya & Smith	2008	Valid
Gymnothorax baranesi	Smith, Brokovich & Einbinder	2008	Valid
Anarchias exulatus	Reece, Smith & Holm	2010	Valid
Anarchias schultzi	Reece, Smith & Holm	2010	Valid
Parabathymyrus philippinensis	Ho, Smith & Shao	2015	Valid
Gymnothorax mishrai	Ray, Mohapatra & Smith	2015	Valid
Nettenchelys proxima	Smith, Lin & Chen	2015	Valid
Saurenchelys gigas	Lin, Smith & Shao	2015	Valid
Neenchelys diaphora	Ho, McCosker & Smith	2015	Valid
Neenchelys pelagica	Ho, McCosker & Smith	2015	Valid
Neenchelys similis	Ho, McCosker & Smith	2015	Valid
Dysomma taiwanense	Ho, Smith & Tighe	2015	Valid
Gymnothorax indicus	Mohapatra, Ray, Smith & Mishra	2016	Valid
Enchelycore propinqua	Mohapatra, Smith, Mohanty, Mishra & Tudu	2017	Valid
Gymnothorax pseudotile	Mohapatra, Smith, Ray, Mishra & Mohanty	2017	Valid
Gymnothorax visakhaensis	Mohapatra, Smith, Mohanty, Mishra & Tudu	2017	Valid
Ariosoma emmae	Smith & Ho	2018	Valid
Bathycongrus albimarginatus	Huang, Smith, Chang & Chen	2018	Valid
Bathycongrus graciliceps	Smith & Ho	2018	Valid
Bathycongrus bimaculatus	Smith & Ho	2018	Valid
Bathycongrus castlei	Smith & Ho	2018	Valid
Bathyuroconger hawaiiensis	Smith, Ho & Tashiro	2018	Valid
Bathyuroconger albus	Smith, Ho & Tashiro	2018	Valid
Bathyuroconger dolichosomus	Smith, Ho & Tashiro	2018	Valid
Bathyuroconger fowleri	Smith, Ho & Tashiro	2018	Valid
Macrocephenchelys nigriventris	Lin, Shao & Smith	2018	Valid
Rostroconger macrouriceps	Smith	2018	Valid
Gymnothorax odishi	Mohapatra, Mohanty, Smith, Mishra & Roy	2018	Valid
Gymnothorax vietnamensis	Smith, Hibino & Ho	2018	Valid
Gymnothorax pseudoprolatus	Smith, Hibino & Ho	2018	Valid
Gymnothorax pharaonis	Smith, Bogorodsky, Mal & Alpermann	2019	Valid
Bathycongrus villosus	Smith, Karmovskaya & da Silva	2020	Valid

Gymnothorax elaineheemstrae	Sithole, Smith, Mwale & Gouws	2020	Valid
Diaphenchelys laimospila	Huang, Smith & Liao	2021	Valid

References

Bowman, I.A., and D.G. Smith. 2015. Arthur Wilbur Henn: unsung hero of the American Society of Ichthyologists and Herpetologists. Copeia, 103 (2):455–466.

Fricke, R., Eschmeyer, W.N. & R. van der Laan (eds). 2022. Eschmeyer's Catalog of Fishes: Genera, Species, References. Electronic version accessed 22 February 2022. http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp

Hilton, E.J., and D.G. Smith. 2014. The second 50 years of the American Society of Ichthyologists and Herpetologists: personal reflections on the ASIH from Bruce B. Collette. Copeia, 2014:372–380.

Marshall, N.B. 1990. Review: Fishes of the Western North Atlantic. Part Nine: Anguilliformes, Saccopharyngiformes, and Leptocephali. 2 Vols. $145.00. Copeia 1990: 1201–1202.

Strang, P. 1990. Review: Fishes of the Western North Atlantic. Part 9, vol. 2. J. Fish Biol. 37:831–832.