

Research Center. He is an ecosystem ecologist working to discover how plants, animals, and microbes interact within rivers. His expertise includes work with autonomous and in situ sensors; aquatic and estuarine ecosystem metabolism, nutrient, and carbon dynamics; and fluvial, wetland, and estuarine sediment dynamics and hydrology.

Christian Fritsen is a Research Professor at the Desert Research Institute, University of Nevada, Reno. His expertise is in interactions between microbes and their physiochemical environment; sea ice, lake ice, and glaciers; Antarctic ice-covered lakes; watershed-scale hydrological processes; and ecosystem responses to climate change.

Christof Meile is a Professor of Marine Sciences at the University of Georgia. His research involves nutrient dynamics and microbial metabolism at the land-ocean interface and in marine sediments and the response of aquatic systems to perturbations. His expertise includes sediment biogeochemistry; nitrogen and iron under varying redox conditions; saltmarshes, cold seeps, and soils; and microbial dynamics in reactive transport models.

Ben Surridge is a Senior Lecturer at the Lancaster Environment Centre, Lancaster University. His work examines the effects of greatly increased nutrient fluxes on water and soil ecosystems. His expertise includes carbon/nitrogen/phosphorus cycling; stable isotope biogeochemistry; statistical modeling of complex environmental systems; and eutrophication in lakes, streams, and wetlands.

Isaac Santos is a Professor in the National Marine Science Centre at Southern Cross University, Coffs Harbour. He works at the interface among coastal oceanography, hydrology, and biogeochemistry. His expertise includes the use of natural stable and radioactive tracers, greenhouse gases and carbon sequestration, submarine groundwater discharge, analytical automation, coral reef calcification, and coastal ecosystems.

Hayley Schiebel is an Assistant Professor at the Center for Urban Ecology and Sustainability, Suffolk University, Boston. Her work involves dissolved organic matter sources, sinks, and transformations; air-sea dynamics; nitrogen deposition and cycling;

wetland ecology; sediment biogeochemistry; and ocean acidification.

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MESSAGE FROM THE BUSINESS OFFICE

Helen Schneider Lemay

A big part of our society activities centers around meetings. We make presentations, interact with other scientists from around the world, engage in learning during workshops, and gain understanding of the world around us through our speakers. One such fantastic meeting, the Aquatic Sciences Meeting in San Juan, Puerto Rico, had a strong focus on resilience and recovery following natural disasters. Many of the plenary talks were given by local speakers. Approximately 250 high school students came and interacted during the Education Fair, and we gave back through organized outreach activities.

Plans are well underway for the 2020 Ocean Sciences Meeting in San Diego, California, and ASLO will have a joint summer meeting on 07–12 June 2020 with the Society for Freshwater Science in Madison, Wisconsin. The theme for the meeting is “Sustaining Aquatic Ecosystems Under Global Change.” Steve Carpenter (University of Wisconsin-Madison) and Nancy Grimm (Arizona State University) are the chairs. Plans also are under way for the 2021 Aquatic Sciences Meeting to be held in Palma de Mallorca, Spain.

Of course, attending meetings means traveling. I recently read an article which stated that the airlines are struggling with the goal of going green. Virgin Atlantic and United have tried using biofuel to the billions of gallons of fuel used, but we are talking about 0.03%. The EPA says that U.S. commercial airlines’ carbon dioxide emissions increased 6.2% from 2010 to 2016. Worldwide, air transportation accounts for about 2% of global carbon emissions. New airplanes are more efficient.

Airlines are looking at carbon offsets and estimate the cost to be about \$5 USD per passenger (McCartney 2019).

Let us continue to support the increased use of biofuels and improved airplane manufacturing technology for travel as well as different ways of delivering science using alternate means of communication.

Reference

S. McCartney. 2019. Just how green are U.S. airlines? *Wall Street Journal*. Available from <https://www.wsj.com/>



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ASLO ACTIVITIES FOCUS ON MEETING THE NEEDS OF EARLY CAREER MEMBERS

Kateri R. Salk , **Patrick Fink** , **Christopher T. Filstrup** , **Kevin C. Rose** , and **Hans-Peter Grossart** 

Early career scientists face an evolving and rapidly changing world of scientific careers. Today, early career researchers compete in the job market with the largest group of new PhDs in history, work in an increasingly interdisciplinary and variable international setting, and contend with massive changes to the structure of both academic and nonacademic careers. In contrast to earlier times, scientific careers are much more diversified and do not follow a single concept anymore. The ASLO Early Career Committee, made up of a selection of early and mid-career members of ASLO, is working to help prepare early career aquatic scientists for these multiple and often confusing challenges and demands.

At the 2019 Aquatic Sciences Meeting in San Juan, Puerto Rico, the Early Career Committee facilitated several activities

geared toward early career ASLO membership. The week began with an informal mixer on Monday night, where early career scientists gathered to socialize and network with peers, members of the ASLO team, and senior scientists. Later in the week, during the Wednesday lunch break, the Early Career Committee hosted a workshop with a panel discussion on *How to Successfully Write Proposals and Receive Funding*.

In preparing the panel discussion, the ASLO Early Career Committee tried to cover a broad diversity in the panelists' geographical origin, career stage, type of funding body addressed and their different roles in the grant writing and evaluation process (e.g., as applicants, reviewers, board members, and decision makers). The five invited panelists were:

- Tom Battin, École Polytechnique Fédérale de Lausanne, Switzerland; Tom has worked and successfully received project grants in several European countries and at the European Union level. He contributed a European perspective to the discussion.
- Sudeep Chandra, University of Nevada, USA; Sudeep has worked at the U.S. National Science Foundation (NSF) and has received numerous grants both from NSF and nongovernment organizations. He contributed expertise on different application strategies for large versus small-scale grant proposals.
- Roxane Maranger, Université de Montréal, Canada; Roxane is president-elect of ASLO and has extensive experience both as applicant and board member of the Canadian Natural Sciences and Engineering Research Council as well as former head of GRIL (Groupe de Recherche Interuniversitaire en Limnologie) in Quebec, Canada.
- Michael E. Sieracki, NSF; Michael is a program director for Biological Oceanography at NSF and gave extensive information on the inner workings of NSF program offices and review panels and their criteria in selecting proposals for funding.
- Grace Wilkinson, Iowa State University, USA; Grace is an early career researcher who recently acquired funding from NSF and other U.S. funding sources and was



FIG. 1. ASLO early career meeting attendees listen and ask questions to an international panel of researchers who spoke about grant writing and funding acquisition during the early career lunch workshop at the Aquatic Sciences Meeting in San Juan, Puerto Rico.

able to provide first-hand experience on successful grant application strategies.

The discussion was chaired by the head of ASLO's Early Career Committee, Hans-Peter Grossart from the Leibniz Institute for Freshwater Ecology and Inland Fisheries, who also contributed his views on the European funding environment.

The diverse panel of experts provided a perspective on the similarities and differences among funding programs relevant to the majority of ASLO early career members. The workshop drew over 150 participants (Fig. 1), emphasizing that grant-writing and acquiring funding are topics of highest priority for early-career scientists. Thanks to many questions from the interested and attentive audience, the discussion covered a wide range of relevant topics. In particular,

the panelists shared tips they learned while working as program officers and panelists for granting agencies as well as being scientists at the same time. Thus, all panelists shared their individual and valuable strategies for earning support at the early career stage. Much of the advice provided was relevant and comprised several general hints regardless of funding agency, including:

- Have a long-term plan for your scientific ideas and think about how to best achieve it at the different stages of your career
- Do not hesitate to contact program officers directly to identify how your work relates to the specific call or thematic focus of their unit; but approach them with respect and do not wait until the last minute
- Scale your work so that you can pursue grants of different amounts, with some being used as seed grants for larger work
- Diversify your portfolio of potential funding sources
- Provide a conceptual framework and clear structure so that your proposals are easily followed by reviewers and evaluation panels; in particular for applied proposals, start with the core idea up front
- Write with the perspective of your reviewer in mind—what do they need to know about your planned project?

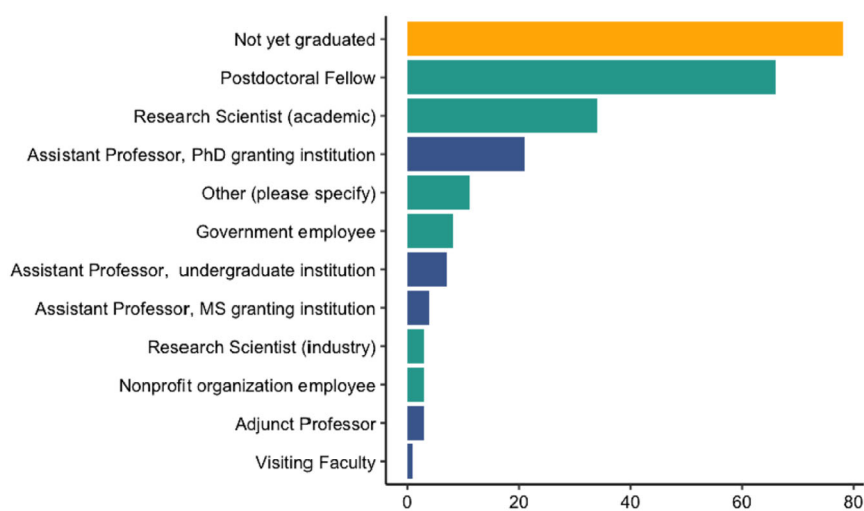


FIG. 2. The current position of respondents from the ASLO Early Career survey: gold: Late-stage graduate students; green: nonfaculty positions; blue: faculty positions. The x axis corresponds to the number of respondents for each category.

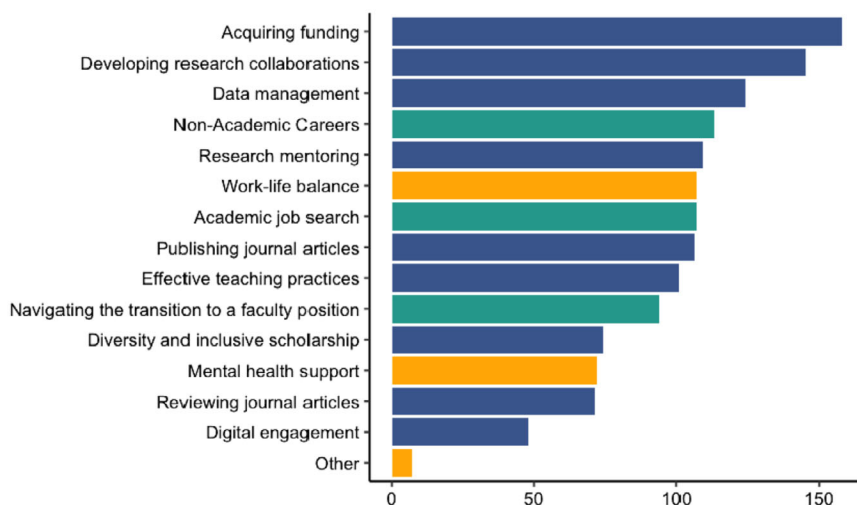


FIG. 3. Answers to the question: “What topics related to early career development would interest you?” from the ASLO Early Career survey. The x axis corresponds to the number of respondents for each category. Color code represents type of topic: blue: academic career related; green: career choice strategies; gold: healthy lifestyle.

- Provide all information to make your proposal exciting and interesting for reviewers and funders
- Be opportunistic by remaining open to new collaborations and funding sources outside your main focus
- Use listservs such as Ecological Society of America’s ECOLOG-L, social media (follow Twitter accounts of funding agencies to receive information on recent calls) and network with colleagues to keep up to date on funding opportunities
- Be prepared for questions; how will your research address foundation missions?
- Last but not least: Adhere to the instructions specified for the program; many proposals are eliminated for formal reasons before scientific excellence is even evaluated

In addition to in-person activities, the Early Career Committee had distributed a survey to ASLO’s early career membership prior to the Aquatic Sciences Meeting. With 251 responses from our community of over 1000 scientists, we received a large amount of information from active members. The survey highlighted that ASLO’s early career community is internationally diverse, with 35 countries of citizenship and 31 countries of work represented. Early career ASLO scientists fill several roles in their current positions, including late-stage graduate students, nonfaculty positions such as postdoctoral fellows and research scientists, and faculty positions (Fig. 2). When asked about topics of interest for future workshops and online resources, survey respondents highlighted a variety of professional

activities, career information, and advice about maintaining a healthy lifestyle (Fig. 3). The committee will use the results of this survey to focus future activities at conferences on these interests. For instance, “acquiring funding” earned the highest number of responses for this question and drove our decision to choose this topic for the latest conference workshop. The Early Career Committee also plans to broaden our online engagement both on the rejuvenated Early Career website (<https://www.aslo.org/page/early-career-resources>) and via social media (e.g., #ASLOEarlyCareer on Twitter). Feel free to contact the Early Career Committee via email (career@lists.aslo.org) or website: <https://www.aslo.org/page/early-career>.

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