

## Highlights of the Year

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## Events Held This Year

### New Counselor Orientation

**September 6<sup>th</sup>:** Overview of COMS mission and vision and councilor's role in identifying the future of microbial sciences

### Quarterly All COMS Meetings

**September 8<sup>th</sup>:** Virginia Miller and Stefano Bertuzzi presented the ASM Strategic Roadmap and the evolution of COMS into new scientific units.

**January 11<sup>th</sup>:** Follow up on the ASM Strategic Roadmap and solicited input from COMS. Highlighted collaborations with Meetings with presentations by Yvette McCarter, Karla Satchell, and Bob Tibbitts on ASM meetings' scope and structure including Microbe 2024 sessions.

**March 18<sup>th</sup>:** Updates on the ASM Strategic Roadmap timeline, including a vote on the bylaw changes. Patrick Schloss and Anirban Mahapatra discussed the editorial vision for Journals, open access, and the launch of *ASM Case Reports*. Editors in Chief shared highlights from *mSphere*, *mSystems*, *Microbiology & Molecular Biology Reviews*, and *Journal of Virology*.

### Reoccurring Leadership Meetings

**Bi-monthly Community Leader Meetings:** Continue momentum from the previous year and engage all 8 Communities in the next steps for retreat cycle progression and COMS initiatives.

**Bi-monthly Branch Councilor Meetings** – Established a space to support the scientific needs and increase knowledge sharing of Branches.

### '24 Community Retreats

**Antimicrobial Agents & Resistance (AAR) Community Retreat:** Experts from AMR pillars identified the trends and challenges shaping the future of AAR (**page 3**).

**Molecular Biology & Physiology (MBP) Community Retreat:** Early career scientists highlighted innovations and workshop participants proposed recommendations for advancing MBP research (**page 4**).

### COMS in Atlanta, GA

**All-COMS Summer Meeting:** Focused on COMS's role in supporting new ASM Scientific Units, grassroots science, and fostering collaboration, policy & advocacy, and education (**page 5**).

**Interdisciplinary Science Workshop:** Aimed to connect individuals and a global network, transforming microbiologists' view of their contributions and societal impact (**page 6**).

**Community Retreats:** Discussed next steps for AAR & MBP and initiated kick-off for POM, CIV/CPHM, & AES

**COMS Report-outs:** Presented COMS accomplishments and plans for the next year at the Young Ambassadors Retreat and Branch Officers Forum.

## Letter from the Chair – Denise Akob



Serving as COMS Chair this past year has been an absolute privilege. Looking back, I'm proud of what we've accomplished in such a short time—from enhancing COMS's impact to supporting the transition into the new Strategic Framework. These efforts will be seen for years to come as ASM transitions to the 3 Scientific Units and the next generation of microbial scientists.

Improving communications within COMS has been instrumental in identifying future opportunities and challenges for the microbial sciences and significant recognition of COMS's impact on ASM. By creating open lines of communication with Branch Councilors, we've gained an understanding of the scientific needs of Branches. Our successful Community Retreats, workshops, and COMS meetings have identified common themes to help steer the Society into the future. We built robust connections across ASM, e.g., Meetings and Journals, that will have a lasting effect on the Society and support volunteers and members well into the future. I cannot thank our Community Leaders (and Deputies), Retreat Organizing Committees, and Branch Councilors enough for their time to support these efforts.

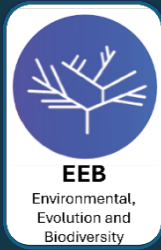
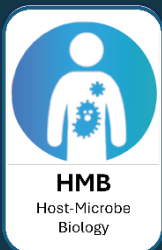
I am deeply grateful to Beth Oates for her invaluable support and commitment and to Heidi Kaplan and Michelle Dziejman for their partnership. As Heidi takes over as COMS Chair, I am confident she and Michelle (Vice Chair) will continue the exciting work of COMS and continue to build connections across ASM. As I transition back to the "bench," I will miss working with each of you. I look forward to connecting with everyone at Microbe and supporting ASM.





# COMS 2023 - 2024 Accomplishments

## Momentum from 2023 Community Retreats



Identified recommendations to highlight based on 'Next Step' discussions held at ASM Microbe 2023.

Shared retreat highlights via ASM Studio talks, currently available on ASM YouTube

- ['Weaving the Interdisciplinary Web of Host-Microbe Biology'](#)
- ['The Origins and Evolution of the Environmental Microbiology Field'](#)

Published mini-reviews on the scientific trends and discussions from the 2023 retreats in *mSphere*

- [Host-Microbe Retreat Report](#)
- [Ecology, Evolution & Biodiversity Retreat Report](#)

Hosted Lounge & Learn Sessions "Perspectives on the Long-Term Horizon of HMB (or) EEB" at Microbe '24

Created and communicated the prioritized recommendations to ASM leadership and members.

## Identified Common Themes

- Enhanced networking and resource sharing are essential for fostering future innovation in microbial sciences
- Trainees and early-career scientists need support and platforms to promote and advance their science
- A "universal scientific language" and data standards are crucial

## Championed Key Initiatives

- Advised on the development of the new Scientific Units
- Facilitated broader member engagement to gather input on priorities and recommendations
- Developed the COMS Interdisciplinary Science Workshop to identify common themes and priorities across career stages, education, data & technology

## Supported ASM's Scientific Needs Branches

- Established bimonthly Branch Councilor Meetings
- Improved communication and prioritization of scientific needs
- Created informational COMS slides for Branch Meetings
- Participated in the Branch Officers Forum
- Provided critical feedback on implementing the Branch Advisory Council

## Increased Momentum

- Documented COMS achievements in the Year-in-Review Newsletter and with regular updates
- Developed a 'New Councilor Orientation' to define their role and COMS objectives
- Established the Deputy Community Leader position
- Held quarterly All-COMS meetings to communicate progress on COMS priorities
- Promoted cross-community knowledge sharing

## Built Connections Across ASM

- Facilitated discussions and knowledge exchange between COMS and other ASM groups through joint meetings
- COMS Councilors submitted several session proposals for Microbe '24
- Developed cross-cutting events with the Microbe '24 Program Committee
- Worked with Journals to promote scientific trends identified by COMS
- Building a volunteer pipeline for ASM members





# Antimicrobial Agents & Resistance '24 Community Retreat

**Mission:** How can ASM be a home for the entire AAR community?

Day 1 – March 25	Day 2 – March 26	Day 3 – March 28	Day 4 – March 29
<b>Human:</b> Identify how shifts in microbiomes drive the emergence of AMR in animals and the environment	<b>Environment:</b> Determine how AMR evolves and how the evolution impacts clinical settings and beyond	<b>Animal:</b> Identify novel AMR approaches and treatments that other stakeholders can utilize	<b>One Health:</b> Connect all these topics on a large scale and follow AMR across all fields
<b>Martin Blaser, MD</b> Rutgers University	<b>Erica Hartmann, PhD</b> Northwestern University	<b>Paul Plummer, DVM, PhD</b> Iowa State University	<b>Collaborative Workshop</b>
The role of human health and antimicrobial resistance in shaping the future of microbial sciences	The role of antimicrobial resistance in the environment to impact microbial sciences	Linking animal antimicrobial agents & resistance to human and environmental microbiology	Integrating the lessons from human, environment, and animal health to progress the future of AAR

## Retreat Themes and Recommendations

### Drug Development

- Understand antibiotic impacts on microbiomes
- Explore non-traditional therapeutics
- Refine stewardship goals
- Invest in tools, analytics
- Advocate for efforts to combat antimicrobial resistance

### Prevention & Surveillance

- Promote dynamic use of existing tools
- Establish databases, data and method standards, and bioinformatic pipelines
- Expand stewardship from clinical settings to the environment
- Expand understanding of drivers of AMR evolution, including contaminant mixtures

### Diagnostics

- Need more dynamic susceptibility test methods
- Enhance education and guidance for diagnostic stewardship
- Consider acquiring funding (e.g., CDC) rather than relying strictly on volunteer organizations

### Policy & Regulation

- Increase support of researchers by sustaining projects and labs
- Work to change policies to support clinical and environmental AMR projects
- Increase collaborations between government agencies
- Improve sharing of resources and data

### Key Takeaways

- Harmonize data, databases, and improve surveillance
- Improve communication of the impact of One Health and AMR to the scientific and lay communities
- Increase the focus on non-traditional drivers of AMR
- Promote collaboration and standardization across sectors
- Develop new approaches to treat and reduce AMR pathogens



### Recommendations

- Integrate AMR within and across the new ASM Strategic Framework
- De-silo the AMR field
- Promote open-access and cross-platform databases & biobanks
- Raise awareness of AMR and its public health impact
- Promote a holistic approach to AMR

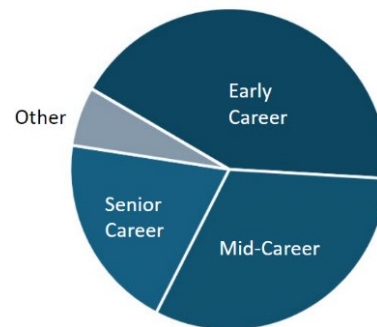


# Molecular Biology & Physiology '24 Community Retreat

## Aspirations of the Retreat

- Identify scientific horizons in MBP-related research
- Attract, support, and highlight early career investigators
- Engage active researchers within the MBP community (both inside and outside of ASM)
- Identify unique and common elements across speakers and discussion topics
- Pursue outcomes that can inform ASM programming (Journals, Meetings, other communities, etc.)

**Career Stages of Registered Retreat Attendees**



## Retreat Demographics

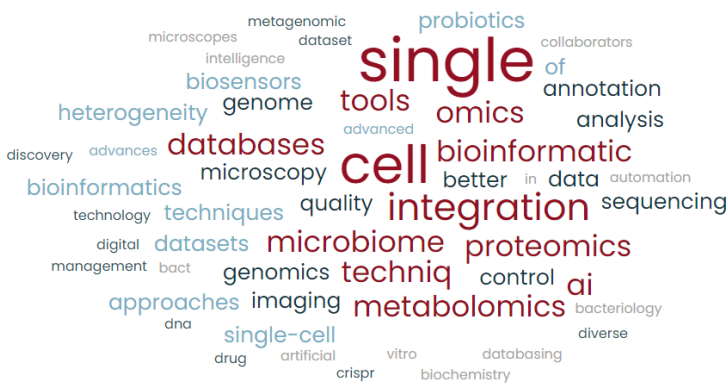
Registered attendees were primarily from:

1. Research institutions
2. Teaching institutions
3. Government institutions

Registrants were distributed across career stages

Average session attendance was ~47% of those who registered

Week 1 - March 6	Week 2 - March 13	Week 3 - March 20	Week 4 - March 27
<b>Perspectives on Metabolic Microbiology</b>	<b>Perspectives on Regulatory Responses</b>	<b>Perspectives on Bacterial Communities</b>	<b>Perspectives on Anti-phage Defense</b>
<b>McKenzie Lehman, PhD</b> University of Nebraska	<b>Andrew Pountain, PhD</b> New York University	<b>Samantha Miranda, PhD</b> University of Washington	<b>Andrew Varble, PhD</b> University of Rochester
<b>Anthony Shiver, PhD</b> Stanford University	<b>Leah Guthrie, PhD</b> University of California, Berkeley	<b>Andrew Bridges, PhD</b> Carnegie Mellon University	<b>Elizabeth Kellogg, PhD</b> St. Jude Children's Research Hospital
<b>Workshop/Discussion Session:</b> Wednesday, April 3rd at 1:00 – 3:30pm			



## Areas critical for the future of MBP science:

- Extending our understanding of simple and complex microbial responses to their environmental
- Promoting studies of new and non-model organisms
- Improving high throughput data collection and analytics
- Advancing automation, computation, and imaging

## Major Recommendations From the Retreat

### Exploring Microbial Environmental Responses

- Increase the focus on microbial mechanisms and interactions in natural environments
- Expand our understanding of polymicrobial interactions and analytical approaches

### Promoting Studies of New & Non-model Organisms

- Increase transformation efficiency, expression, and DNA repair
- Develop universal recombineering platforms
- Use phage biology to translate genomic insights into tractable systems

### Improving High Throughput Data & Analytics

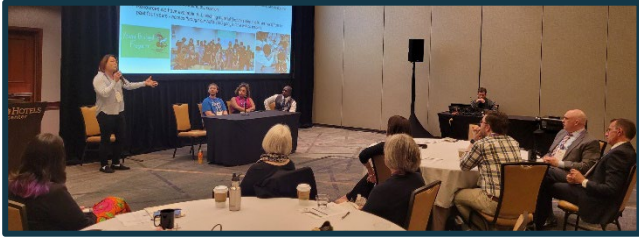
- Standardize and share techniques, methods and data reporting
- Improve the length of DNA sequencing reads
- Collect big data sets for analysis of new and non-model organisms

### Advancing Automation & Computation

- Integrate biological-omics and computational analysis
- Promote advancements in deep learning and AI to improve data analysis and predictions
- Improve gene identification with enhanced bioinformatics



# COMS in Atlanta, GA June 2024



## 2024 Summer All-COMS Meeting

This meeting was held at the Omni Atlanta Hotel in Atlanta, GA, on June 12, 2024. There were over 90 attendees, more than 65 of whom were COMS Councilors. The meeting was divided into three sessions, each building on objectives defined the previous year.

**Session 1** included an overview of COMS accomplishments and retreat reports from AAR and MBP (**pages 3 & 4**). Additionally, a panel of Stefano Bertuzzi, Virginia Miller, Denise Akob, Heidi Kaplan and Michelle Dziejman, moderated by Beth Oates, provided a vision for how the work of COMS will support the ASM Strategic Roadmap.

**Session 2** invited members from 4 different ASM programs to discuss collaborations across the Society. Speakers from ASM Student Chapters and Young Ambassadors spoke on elevating grassroots science by sharing ways to ensure science is shared across the Society, including addressing needs at the local level. Representatives from Public Policy and Advocacy and Education connected the science of ASM members to the other efforts across the organization to illustrate the role of science and volunteers in advancing ASM's programs and priorities. This session ended with Dr. Donna Ginther presenting 'Microbial Workforce – Part 2', built upon last year's published report. The presentation included updated data on demographic makeup, employment outcomes and job characteristics for the field.

### Interdisciplinary Science Workshop

**Session 3** focused on the report-outs from the Interdisciplinary Science Workshop (**page 7**). Heidi Kaplan and Michelle Dziejman closed the meeting with their vision of COMS for 2024-2025 (**page 8**).

### COMS Presents:

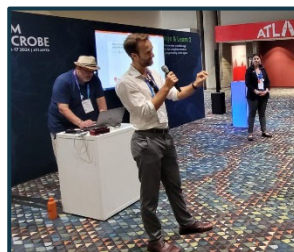
**COMS Presentations to ASM groups:** COMS Chairs, Denise Akob and Heidi Kaplan presented the COMS accomplishments and the vision for next year to the Young Ambassadors and at the Branch Officers Forum on June 13, 2024.

**COMS in ASM Studios:** Retreat leadership from both AAR and MBP presented TED-style talks in the ASM studio. These talks highlighted key scientific takeaways from their retreats. Talks will be available on the ASM YouTube Page.

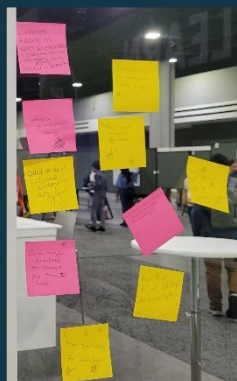
- *'Rethinking Antimicrobial Resistance: Protecting the Microbiome from Antimicrobials and Disinfectants'*, Amy Mathers, AAR Community Leader
- *'New models, tools, and strategies: MBP Highlights Next Generation of Microbiological Innovators'*, Jeff Boyd, MBP Deputy-Community Leader

**COMS in Lounge and Learn:** In keeping with recommendations of both the EEB and HMB retreat reports, the major themes and recommendations were shared with ASM members at a Lounge and Learn session presentation. A formal presentation to discuss the unique priorities of each community was followed by an open discussion.

- *Perspectives on the Long-Term Horizon of EEB*, Pete Girgis, Braden Tierney, Denise Akob & Beth Oates
- *Perspectives on the Long-Term Horizon of HMB*, Monica Gestal, Alison Criss & Beth Oates



### Communities-Tracks Meet Up:



Each of the 8 COMS Communities, in collaboration with their Microbe Programmatic Track Leads, sponsored a session at the Track Hub, which aimed to build community networks and gather input from members of their communities attending ASM. Overall, these sessions were a great success providing helpful information to members, increasing connections and collecting useful comments on the ASM Microbe meeting. The meet ups were held at a time that did not conflict with sessions.



# COMS Interdisciplinary Science Workshop in Atlanta, GA

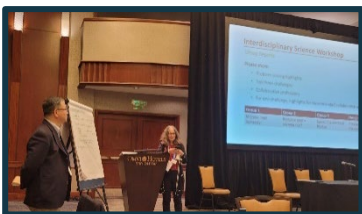
COMS discussions on the **future of microbial sciences highlighted key themes centered on interdisciplinary collaboration and team science**. We adopted a broad definition of 'interdisciplinary' to encompass both STEM and non-STEM fields, **emphasizing the fundamental role of microbial sciences in addressing global challenges**.

The workshop encouraged communication among COMS members, promoting unconventional collaborations and cross-disciplinary dialogue to tackle complex scientific issues. This approach **broadened perspectives on microbiology** and identified common challenges.



If We Build It, Which Microbes Will Come?	Resource Poor, Microbe Rich	Microbes - Heal Humanity!	Space: The Microbial Frontier
Urbanization is rapidly transforming our world, bringing greater access to drinking water, electricity, and other benefits. However, it also coincides with rising rates of non-communicable chronic diseases and autoimmune disorders. Understanding the influence of microbes on the 'built world' is critical to sustaining urbanization.	Extreme weather, biodiversity loss, and disease pattern shifts are worsening. Microbes can both exacerbate and alleviate these changes. How can interdisciplinary science mitigate microbial harm while maximizing their benefit for solving world hunger- and water scarcity-associated issues?	Microbes can both contribute to the development and treatment of chronic diseases. Understanding the complex role of microbes is essential to human health. Looking to the future, what are the priorities and hurdles to stop the development of chronic diseases and improve global human health?	As space exploration and the goal of human colonization become more ambitious, new levels of innovation will be needed, driven by team science. How can cross-disciplinary collaborations enhance our understanding of the connection between microbes, space exploration, and colonization?

## Prioritizing Requirements for Interdisciplinary Science



**Facilitate Collaboration:** Engage experts from various fields to address complex scientific problems through cross-disciplinary communication, ensuring diverse perspectives contribute to setting priorities.

**Impact and Urgency:** Prioritize issues that significantly affect public health, the environment, and populations, with emphasis on challenges that require immediate attention & scientific advancements.

**Resource Availability:** Consider the availability of resources—funding, tools, and personnel—when setting priorities, identifying where innovation is needed to overcome limitations & increase constructive impact.

**Stakeholder Input:** Involve stakeholders, including government agencies, NGOs, industry, and community members, to identify important & urgent issues, fostering cooperation & support and to avoid duplication of efforts.

**Evidence-Based Decision Making:** Base prioritization on data and scientific evidence, focusing on issues with the highest potential for successful intervention & tangible benefits.

## Major Themes from the Interdisciplinary Workshop

**Interdisciplinary Resources and Comprehensive Teams Collaboration:** Emphasize the need for multidisciplinary resources and cooperation across scientific and professional fields. Prioritize key groups for specific issues while promoting broad collaboration, effectively utilizing resources to avoid redundancy and silos in research.

**Baseline Data and Environmental Microbial Contributions Integration:** Deploy tools to gather microbiome data across environments and populations to establish baseline data for informed interventions. This includes studying the impact of increased human-wildlife interactions, addressing food and water insecurity in resource-poor settings, and enhancing microbiome research in urban environments.

**Grassroots Science and Community Engagement:** Involve community colleges, rural and urban campuses, HBCUs, and underserved institutions to support grassroots science. Broaden engagement across all career stages and promote collaboration among agencies to support interdisciplinary research and resource-sharing.

**Targeted Recommendations and Solutions:** Develop context-specific recommendations and solutions tailored to various stakeholders. Focus on moving research from associating factors with outcomes to establishing causal relationships for more effective problem-solving and outcome prediction.



# COMS in 2024 - 2025

## Visions for 2024 – 2025 COMS

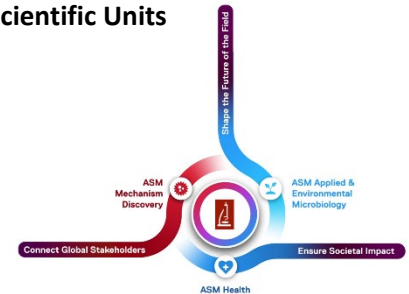
### ASM members are at the vanguard of microbial sciences

#### Visions for Modern Microbial Sciences

1. Advance grassroots science at the local and regional levels
  - Increase bi-directional communication between ASM and Branches, Student and Postdoc Chapters, early career investigators, and trainees
  - Incorporate outreach to underserved or resource-limited institutions and trainees
2. Identify scientific priorities and make recommendations to ASM leadership
  - Continue community retreat cycle and community priorities
  - Compile historical outcomes and activities of COMS
  - Recommendations on the integration of community input into the new Units
3. Broaden engagement across career stages and existing groups
  - Promote volunteering and retreat opportunities that benefit all parties
  - Invite leadership from key ASM committees to All-COMS meetings

## Promoting & Advancing Microbial Sciences

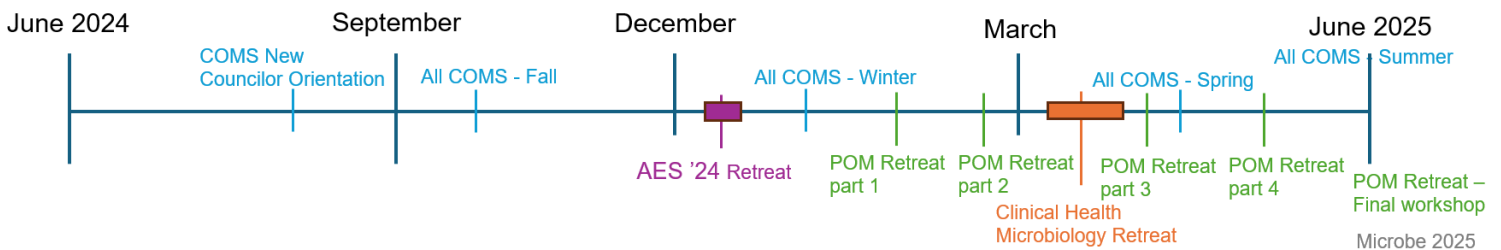
### Evolving the Work of COMS into the New ASM Scientific Units



### Transition planning

- COMS official activities will conclude June 30<sup>th</sup>, 2025
- COMS Branch Councilors will transition to the Branch Advisory Council.
- COMS to provide recommendations and reports to the new Scientific Advisory Councils

**Thank you for your dedication to COMS and in laying the groundwork for the new ASM Framework**



## 2024 - 2025 COMS Community Retreats

**Applied & Environmental (AES) Retreat** will focus on building relationships with academic and non-academic partners, including food, agricultural, and industrial entities, businesses, and government agencies.

**Profession of Microbiology (POM) Retreat** will identify the needs for the future of microbiology and how to train individuals to meet the needs of a diverse and changing workforce.

**Clinical Infections & Vaccines (CIV) and Clinical & Public Health Microbiology (CPHM) Co-hosted Retreat** will identify the approaches needed to integrate infectious disease diagnostics, treatment, and prevention, ultimately supporting human health in clinical settings.