

Presentation to the Savannah River Site Citizens Advisory Board

Savannah River Ecology Laboratory (SREL) Fiscal Year 2015 update

March 28, 2016

**Dr. Olin E. Rhodes, Jr. – Director SREL
Professor, University of Georgia (UGA)**



The University of Georgia

Savannah River Ecology Laboratory

Objectives

- **Savannah River Ecology Lab (SREL) Mission**
- **Staffing**
- **Funding and Work Scope**
- **Significant Events**
- **Advances**
- **Opportunities For Fiscal Year 2016**
- **Emerging Missions For Fiscal Year 2016**

Consistent with the Facilities Disposition and Site Remediation Committee's 2016 Work Plan

Acronyms

ACP	Area Closure Project
DOE	Department of Energy
DOE-HQ	Department of Energy – Headquarters
DOE-SR	Department of Energy – Savannah River
ERDA	U.S. Energy Research and Development Administration
HVAC	Heating, Ventilation and Air Conditioning
NNSA	National Nuclear Security Administration
SREL	Savannah River Ecology Laboratory
SRNL	Savannah River National Laboratory
SRR	Savannah River Remediation
SRS	Savannah River Site
UGA	University of Georgia
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFS-SR	U.S. Forest Service – Savannah River

SREL History

1951 - Atomic Energy Commission (AEC) had concerns about environmental impacts resulting from Savannah River Site (SRS) construction and operations.

1951 to present – Funding from AEC, ERDA, and Department of Energy (DOE)

1954 – Established permanent lab on the SRS



Dr. Eugene Odum



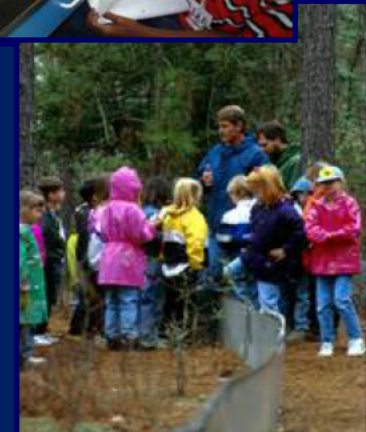
1977 – Established current lab facilities

SREL's Mission:

“To enhance our understanding of the environment by acquiring and communicating knowledge that contributes to sound environmental stewardship.”

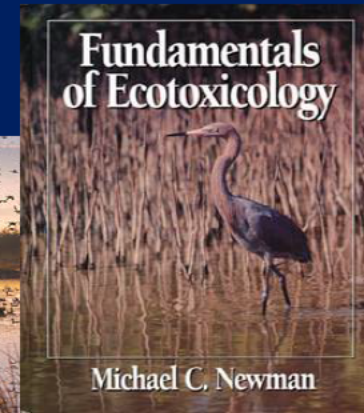
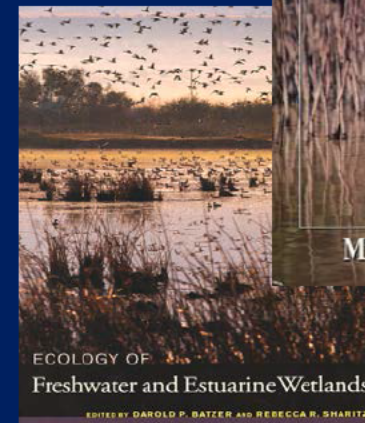
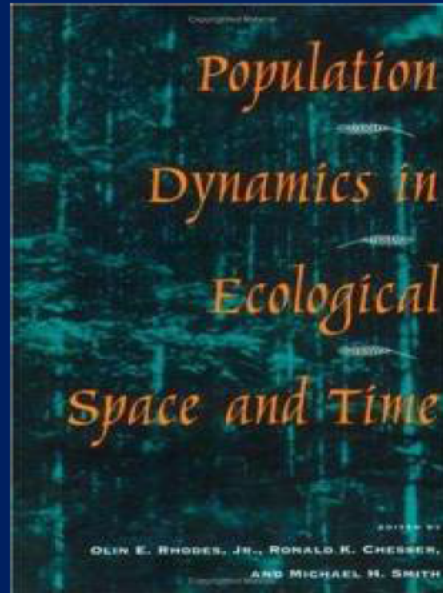
“To provide the public with an independent evaluation of the ecological effects of SRS operations on the environment”

- An interdisciplinary program of field and laboratory **research** conducted largely on the SRS and published in the peer-reviewed scientific literature
- **Education** and research training for undergraduate and graduate students
- **Service** to the community through environmental outreach activities



SREL Research Program's

- >**3345** peer-reviewed scientific publications to date
- **64** books



SREL Education Program

Education Programs

- >400 theses and dissertations
 - 198 M.S.
 - 223 Ph.D.
- SREL graduate students have received more than 125 awards
- Over 700 undergraduates representing all 50 states have participated in SREL-sponsored research to date

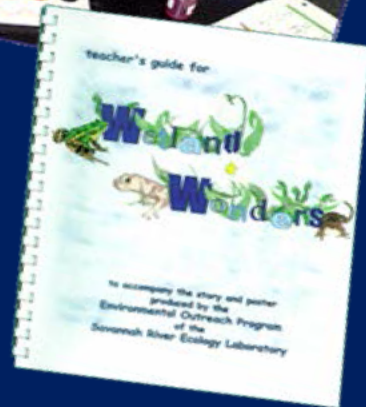
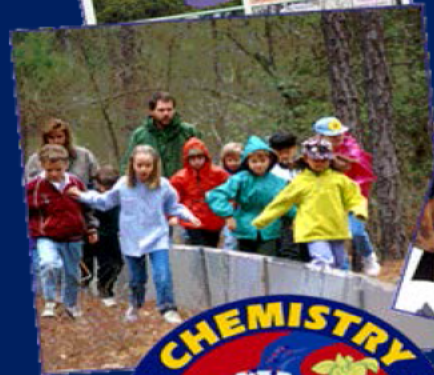


SREL Environmental Outreach Program

- Integrates SREL research into presentations for the general public
- Provides hands-on classroom and field experience for students
- Conducts educator workshops

In 2015, SREL reached ~ **38,000** people
by providing :

- **360** talks
- **41** public tours
- **20** exhibits at local or regional events, and
- **31** “Ecologist for a Day” programs for local schools



SREL in 2015

◎ UGA Employees

- Research Faculty – 5
- Tenure Track Faculty - 4
- UGA-base Faculty - 3
- Post Docs – 8
- Outreach - 6
- Res. Professional - 11
- Research Support - 25
- Graduate Students - 25
- Undergraduates - 14
- Admin & Support - 17

108 Staff & Students

◎ Facilities & Research Areas

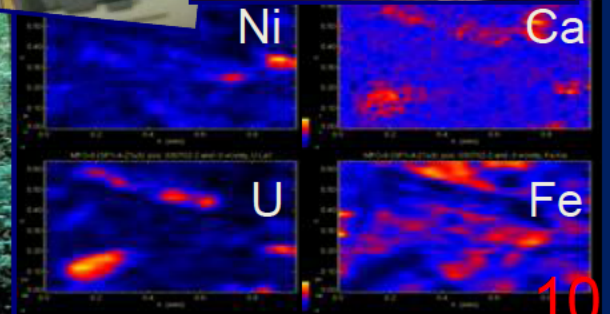
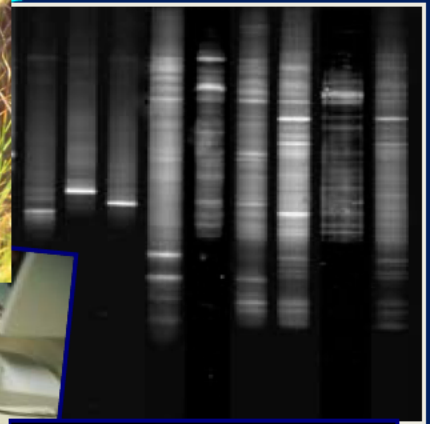
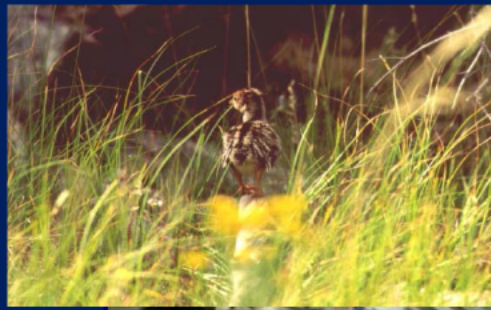
- A-Area (laboratories, equipment, offices, animal care, storage)
- Par Pond (low-dose facility)
- 30 DOE Set-Asides
- 75 field research sites

Disciplinary Expertise

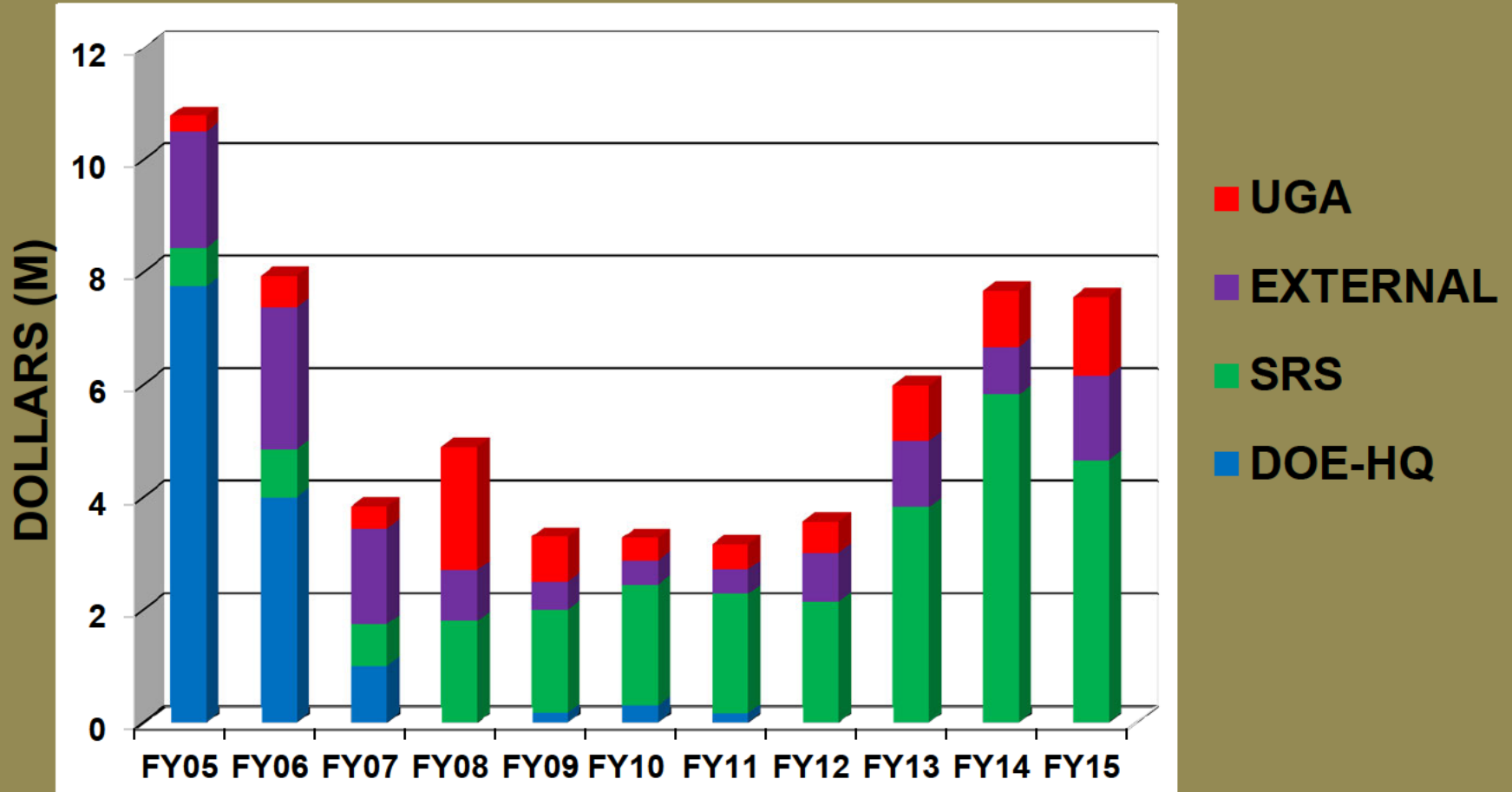
- Aquatic and Terrestrial Ecology
- Geology / Soil Science
- Environmental Microbiology
- Hydrology
- Molecular Biology
- Environmental Chemistry
- Radiation Ecology
- Ecotoxicology and Risk Assessment
- Wildlife Ecology

Current Research Areas

- Characterization and Effects
- Ecological and Health Risks
- Remediation and Restoration



Recent Funding History



Significant Events in Fiscal Year 2015

◎ UGA

- Allowed majority (66%) of the 30% Indirect Costs to be retained by SREL
- Cost-Shared 6 new faculty positions with SREL
- Provided over 70K in funding for equipment and laboratory upgrades
- Cost-shared graduate student and postdoctoral positions

◎ DOE / SRS / External

- Building, equipment, utilities, and site access
- Funding provided by Department of Energy – Savannah River (DOE-SR) under Cooperative Agreement
- Funding provided by DOE – National Nuclear Security Administration (NNSA) for Mixed Oxide Fuel Fabrication Facility and Tritium related research
- Continued project funding from Area Closure Project (ACP) and Savannah River Remediation (SRR)
- 1.5 million in external funding from non-SRS sources leveraged

Advancements in Fiscal Year 2015

1. Work scope:

Research Set-Asides, Site Use Permitting

Enacted significant land management activities for set asides

Graduate and Undergraduate Education Programs

Advised 25 graduate students and hosted 13 undergrads in new NSF funded Research Experience for Undergraduates Program in Radioecology

Hosted a total of over 69 graduate students conducting research on SRS

Taught 1 course on main UGA campus and 3 at SREL

General Public Outreach and Education Programs

Conducted over 450 public outreach events reaching >38,000 people

Interdisciplinary Research

Initiated collaborative research programs with Savannah River National Laboratory (SRNL), U.S. Forest Service–Savannah River (USFS-SR), UGA, U.S. Department of Agriculture (USDA), U.S. Army Corps of Engineers (USACE) & other university, federal, state, and private partners Involving research on radionuclide and metal remediation, feral swine control & radioecology

Site-wide Source of Ecological Expertise

Provided ecological research support to Area Closures Project, SRR, SRNL, etc.

Advancements in Fiscal Year 2015

2. Facilities:

Main SREL facilities

- Major repairs, paint, carpet, lab renovations and HVAC to portions of lab
- Updated major HVAC systems
- Purchased laboratory furnishings for remodel of 10 laboratories

Par Pond Radioecology Lab

- Updated HVAC and carpet

3. Scientific Equipment:

- Analytical equipment purchases to enhance research on contaminants of soil, water, and biological materials
- Significant upgrades to equipment related to radioecology and wildlife research

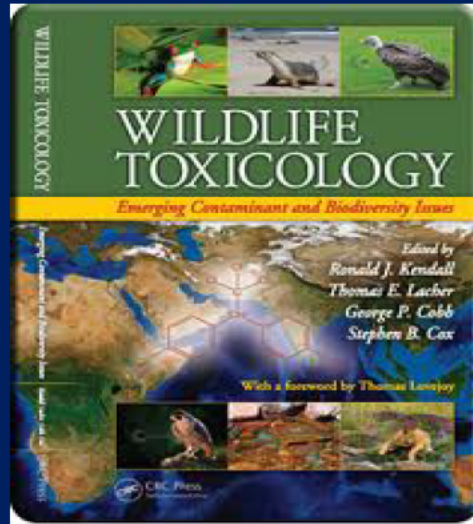
Opportunities for Fiscal Year 2016

1. One additional Research Scientist in disease ecology
2. Continued growth in graduate student enrollment
3. Continued growth in experiential learning for undergrads
4. Continued investments in research infrastructure
5. Continued improvements to facilities
6. Development of new missions and roles on the SRS:
 - a) Radioecology and low dose radiation effects
 - b) Feral swine control on SRS
 - c) Metal and Tritium ecotoxicology
 - d) Environmental justice

Enhance Graduate Training Using SRS as a Living Laboratory



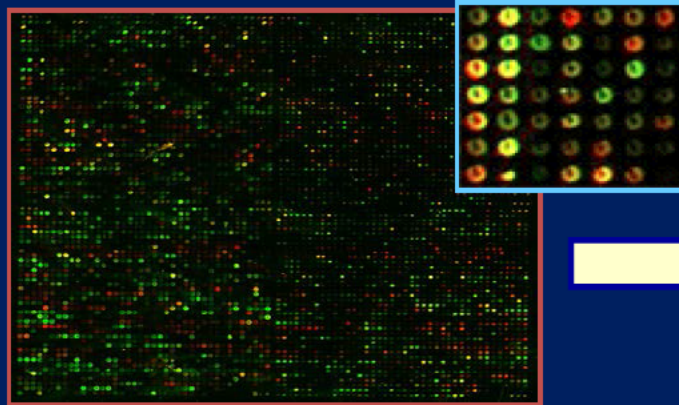
Ecological Impacts of Contaminants



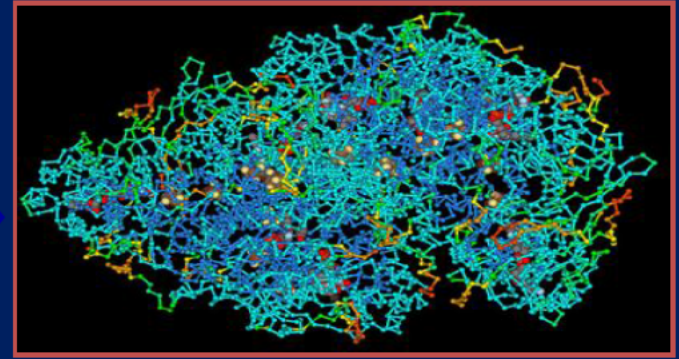
Long-term Surveillance and Monitoring Research and Development



DNA molecule



DNA micro array



protein

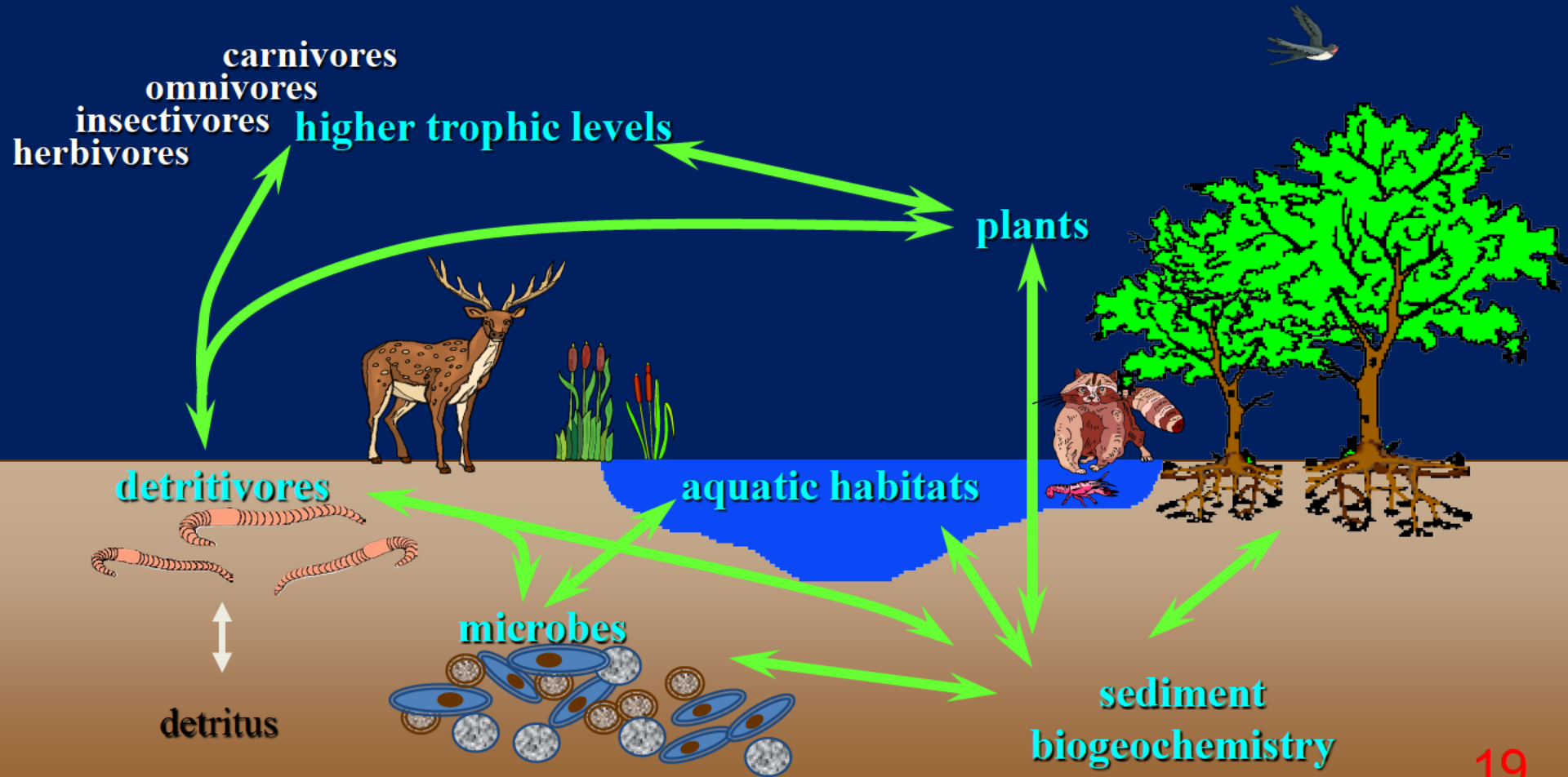


organisms



ecosystem

Develop Ecosystems Approach



Research on Spatially Explicit Dosimetry in Belarus and Japan



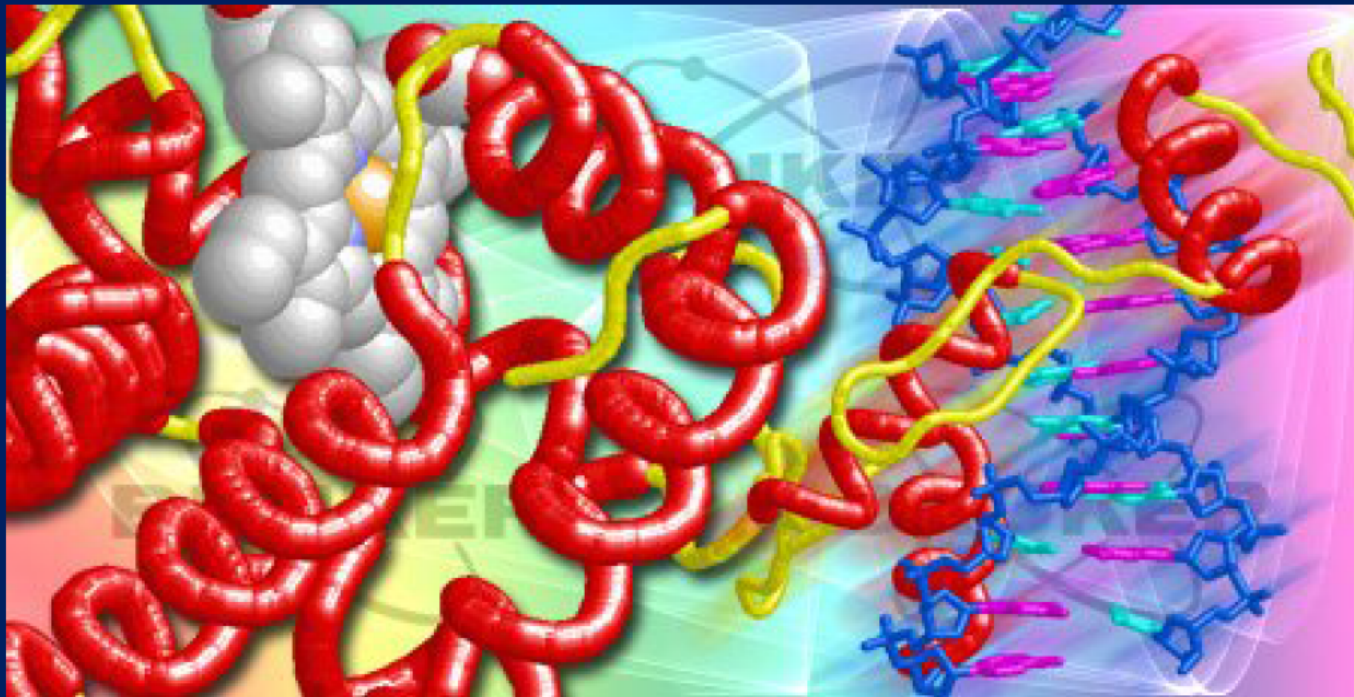
The University of Georgia

Complex Carbohydrate
Research Center



SAVANNAH RIVER ECOLOGY LABORATORY

Next Generation Ecotoxicology



Outreach and Monitoring for Local Communities



Environmental
Justice



Summary

- ◎ SREL has a diversity of expertise available to address ecological issues on the SRS
- ◎ UGA has reinforced its commitment to keeping the laboratory open with the cost share of new faculty lines
- ◎ DOE-SR and NNSA are investing in SREL to utilize the laboratory to meet its work scope for the public good
- ◎ SREL will continue to support the development of radioecology on the SRS and in the United States
- ◎ SREL will continue to make investments in graduate education
- ◎ SREL will continue to serve in its role as an independent source of expertise on the SRS



THANK YOU