



NSF Regional Conference

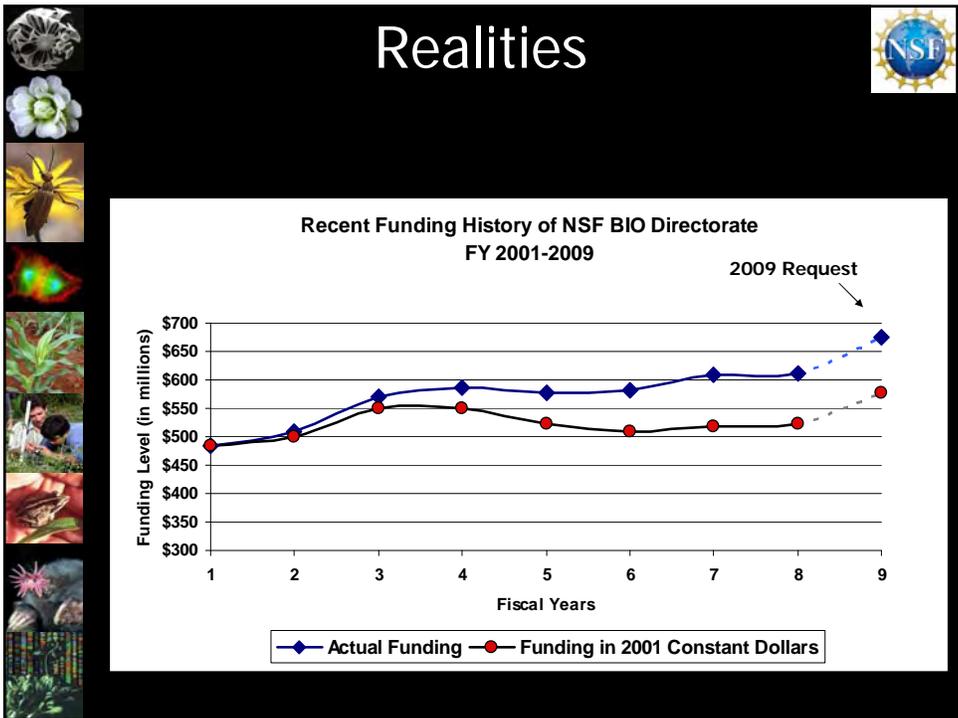
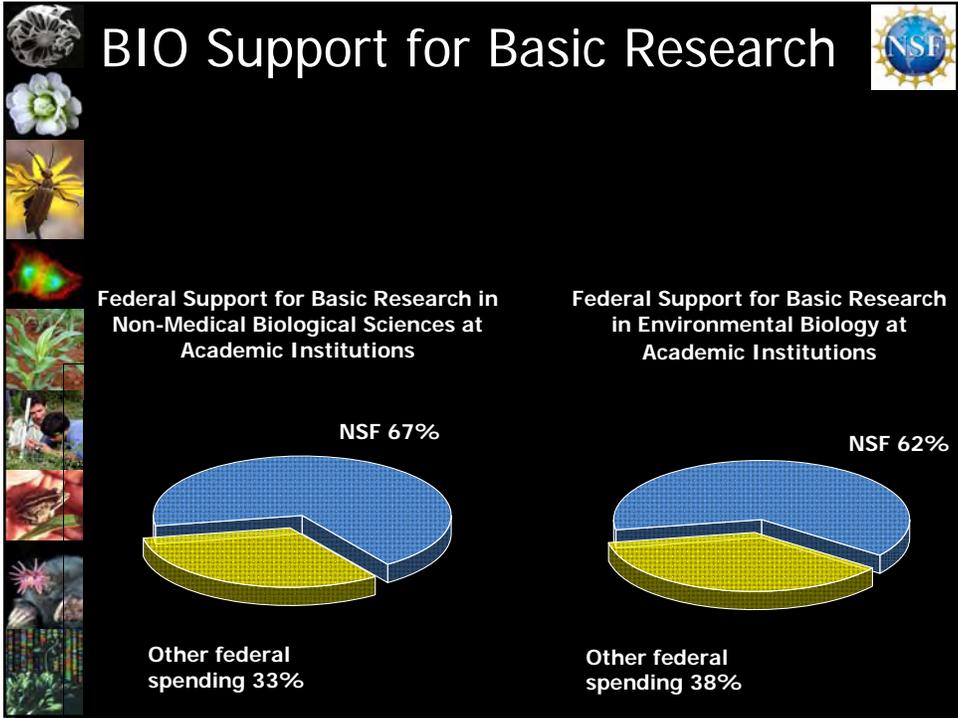
Biological Sciences Directorate

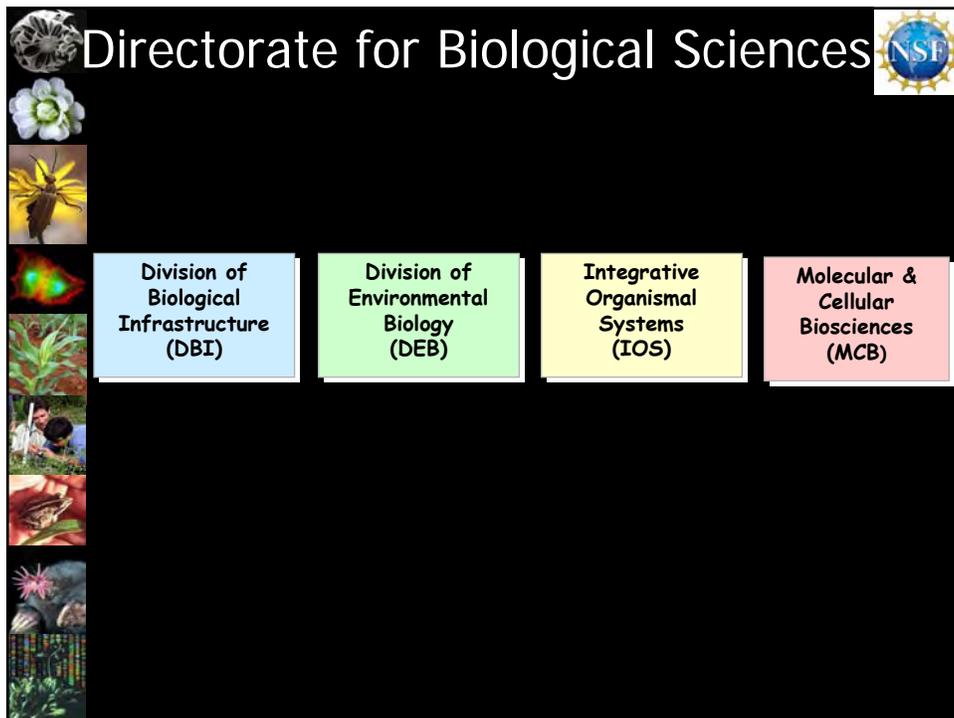
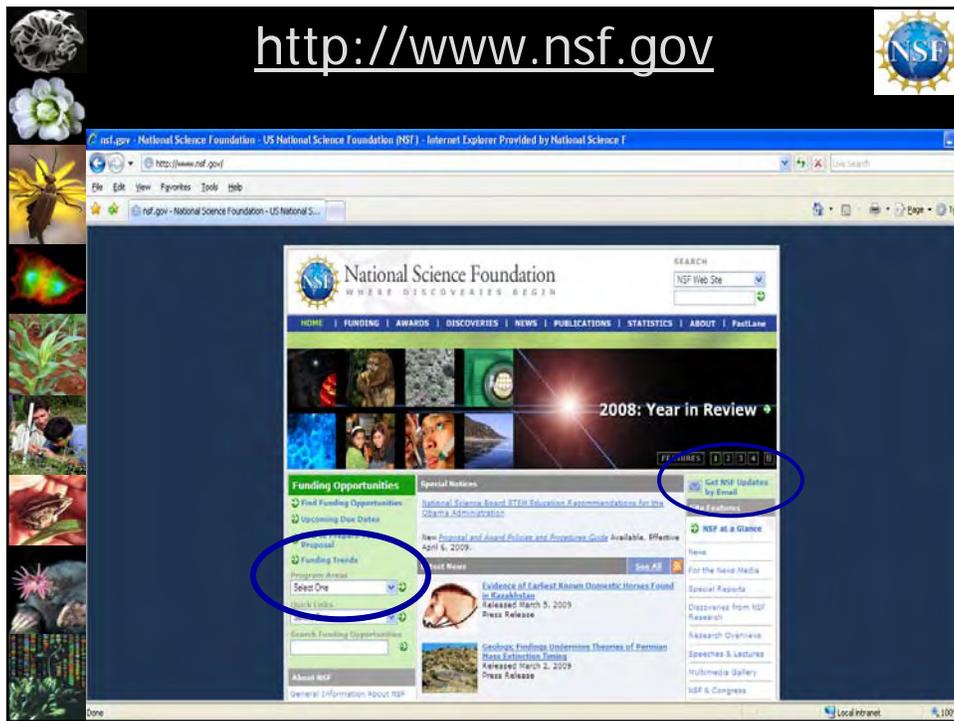
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Biological Sciences Directorate

*Promoting and advancing
scientific progress in biology*







Division of Biological Infrastructure

Empowering biological discovery

Human Resources
*Research Experiences for Undergraduates (Sites);
 Postdoctoral Research Fellowships*

Research Resources
*Biological databases and informatics; biological research
 collections; instrumentation and instrument
 development; improvements in field stations and
 marine laboratories*



Division of Environmental Biology

*Fundamental research on populations, species, communities,
 and ecosystems*

Population and Community Ecology
*Conceptual or theoretical understanding of population ecology,
 species interactions and community dynamics in terrestrial,
 wetland and freshwater habitats.*

Ecosystem Science
*Natural, managed, and disturbed ecosystems; ecosystem
 studies; Long-Term Ecological Research (LTER)*

Evolutionary Processes
*Microevolutionary processes and their macroevolutionary
 consequences. (at the population level or higher)*

Systematic Biology & Biodiversity Inventories
Discovery, description, inventory of species diversity



Integrative Organismal Systems

Fundamental research on integrative understanding of organisms structure and function

Behavioral Systems
Development, function, mechanisms and evolutionary history of behavior

Developmental Systems
Interacting developmental processes shared by all organisms and those that produce diversity

Neural Systems
Complex function of the nervous system; information extraction and integration; adaptive behavior; learning

Physiological & Structural Systems
Interacting physiological and structural systems within environmental and evolutionary contexts



Molecular and Cellular Biosciences

Fundamental understanding of life processes at the molecular, subcellular and cellular levels

Biomolecular Systems
Structure, function, dynamics, interactions, and interconversions of biological molecules

Cellular Systems
Structure, function, and regulation of plant, animal and microbial cells, and their interactions with the environment and with one another

Genes and Genome Systems
Genomes and genetic mechanisms in all organisms, whether prokaryote, eukaryote, phage, or virus



BIO-wide Opportunities



Plant Genome Research Program

- Structure, organization and function of plant genomes
- Accelerate acquisition and utilization of new knowledge and innovative technologies
- Focus on plants of economic importance and plant processes of potential economic value



National Ecological Observatory Network

Biosphere, Geosphere, Atmosphere

- Continental-scale questions (*Will changing climate increase or decrease the biological carbon uptake or emission of the US and by how much?*)
 - Drivers (*climate, biological processes, land use change*)
 - Phenomena (*CO₂ uptake or emission*)
- Forecast effects of climate change, land use change, and invasive species



Research Coordination Networks

- Encourage and foster new interactions
- Promote new research direction or advance a field
- Support communication/coordination across disciplinary, organizational, institutional and geographical boundaries
- \$50 to \$100 K per year for up to 5 years



Research Coordination Networks Undergraduate Biology Education



- Active and/or inquiry-based learning
- Use of emerging technologies
- Faculty professional development activities related to undergraduate education
- Incorporating emerging sub-disciplines into the biology curriculum (e.g., informatics research, proteomics, ecological stoichiometry)
- Improving assessment of student learning
- Improving the transition of students from two-year to four-year institutions



BIO-Funded Centers



- National Center for Ecological Analysis and Synthesis
- National Evolutionary Synthesis Center
- iPlant Collaborative
- National Institute for Mathematical & Biological Synthesis
- Centers for Environmental Implications of Nanotechnology



Doctoral Dissertation Improvement Grants



- DEB and IOS
- Must pass candidacy by the deadline
- Funds research-related costs only
 - Upper limit is \$12,000
 - May include travel to meetings



BIO Supplementary Funding



- Research Opportunity Awards
- Research Experiences for Teachers
- Research Experiences for Undergraduates

Summary Points



- New opportunities – www.nsf.gov
- BIO Program Directors
- Program Solicitations / Dear Colleague Letters
- Proposal & Award Policies & Procedures Guide

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