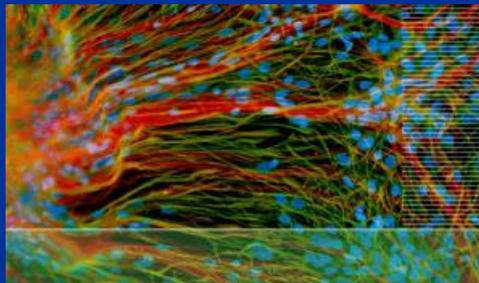


The National Academies' Board on Life Sciences

Dr. Frances Sharples

Director

National Research Council



BLS

Board on Life Sciences

What is the Value of National Academy Reports?

- Document the state of knowledge, identify uncertainties, and help prioritize future efforts
- Make policymakers and the public aware of important issues they may not be familiar with
- Provide policymakers with information on options for decisions and the likely consequences of particular choices

BLS Mission

- Serve as the National Academies' focal point for a wide range of technical and policy topics in the life sciences
- Organize and oversee studies that provide advice to government and the scientific community on the biological sciences and their impact on society
- Maintains expertise in and understanding of the full spectrum of life science disciplines to be able to deal with issues of both basic science (e.g., knowledge gaps, research priorities, needed investments) and the higher level policy concerns that flow from or build on the basic science

BLS REPORTS FALL INTO A NUMBER OF GENERAL CATEGORIES

- **Biological and Biomedical Research**
- **Genomics**
- **Biotechnology**
- **Biosafety and Biosecurity**
- **Biological Forensics**
- **Biology Education and Workforce**

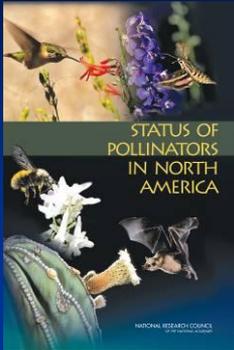
BLS REPORTS FALL INTO A NUMBER OF GENERAL CATEGORIES

- Ecology and Evolution
- Ecological and Environmental Research
- Biodiversity
- Astrobiology

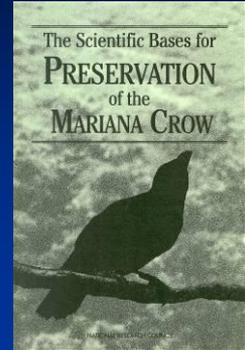
MANY BLS REPORTS HAVE HAD SUBSTANTIVE IMPACTS

- **Guidelines for Human Embryonic Stem Cell Research (2005):** Established an oversight mechanism for embryonic stem cell research that is in use nationwide
- **Mapping and Sequencing the Human Genome (1988):** One of two documents that turned the tide in favor of establishing the Human Genome Project
- **The New Science of Metagenomics: Revealing the Secrets of Our Microbial Planet (2007):** Encouraged the establishment or expansion of metagenomics research by several agencies
- **The Evaluation of Forensic DNA Evidence (1996):** Served as the “bible” for establishing standards for the use of human DNA evidence in court trials.
- **Bridges to Independence: Fostering the Independence of New Investigators in Biomedical Research (2005):** Recommended new programs to help support post docs to transition to faculty positions, which helped NIH establish several major new programs at levels of hundreds of millions of dollars
- **Biodiversity (1988):** One of earliest reports bringing the concept of biodiversity to public attention, coined the term “biodiversity”

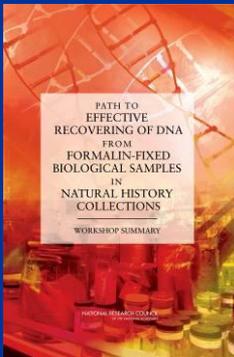
Biodiversity Reports of the Board on Life Sciences



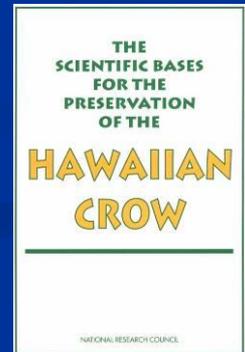
- Status of Pollinators in North America (2006)
- Path to Effective Recovering of DNA from Formalin-Fixed Biological Samples in Natural History Collections: Workshop Summary (2006)



- Perspectives on Biodiversity: Valuing Its Role in an Everchanging World (1999)



- The Scientific Bases for the Preservation of the Mariana Crow (1997)



- Understanding Marine Biodiversity (1995)

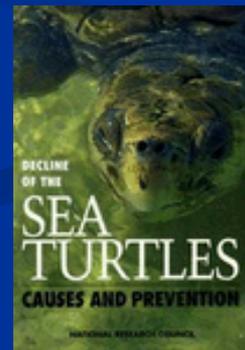
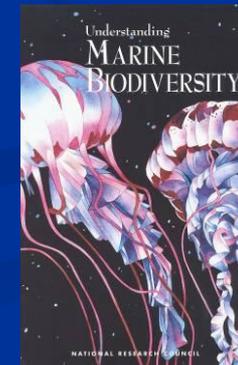
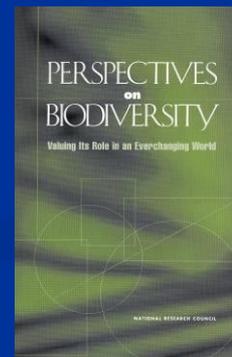
- The Scientific Bases for the Preservation of the Hawaiian Crow (1992)



- Decline of the Sea Turtles (1990)

- Evaluation of Biodiversity Projects (1989)

- Biodiversity (1988)



We are currently working on only one
ecologically-oriented report

Ecological Impacts of Climate Change

- Developing a report to summarize current state of knowledge on ecological impacts
- Report will be turned into a 20+ page brochure for the public
- Intent is to provide materials for teachers, park and wildlife refuge employees, et al.
- Supported by USGS

It is currently very difficult to find funding for studies related to ecology and biodiversity

- The reality is that BLS must go where the money is to stay in business
- At the moment, Biosecurity and Biosafety is currently the topic area in which the largest chunk of our work falls
- Biomedical research, genomics and biotechnology also offer many more study opportunities than ecology or environmental science

Biosafety and Biosecurity Projects

- Scientific milestones for an alternative oversight system for select agents
- Evaluation of the evidence in the FBI's "Amerithrax" case
- Governance for high containment labs
- Special Immunization Program for high containment lab workers
- Animal models for testing countermeasures to biothreat agents
- Microbial community dynamics, biogeography, forensics
- Education for biosecurity and dual use research concerns

**BLS has also begun to develop “derivative products”
to increase dissemination of information based on
our reports**

- **Report briefs: 4-6 page summaries**
- **Brochures**
- **Posters**
- **Websites**
- **Workshop presentation archives**
- **Podcasts**

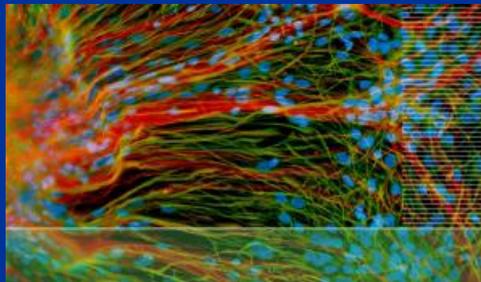
One report currently in preparation might be of general interest to the biology community

A New Biology for the 21st Century: Ensuring that the United States Leads the Coming Biology Revolution

Biology is poised for a great synthesis. Biologists are increasingly able to combine their knowledge of individual biological "parts" into an understanding of the whole. Enabled by increasingly powerful instrumentation and information processing capabilities, this fundamental change in the nature of biological science has implications for the culture of the biological research enterprise, how biological research is funded, and how biology is taught. An ad hoc committee will evaluate the changing landscape of the biological sciences. Among the questions the committee may address are: (1) What are the areas where advances in biological science are most likely to bring practical applications in the near future? In what areas would near term investment be most likely to lead to substantial long-term benefit and a strong, comparative advantage for the United States? (2) What federal initiatives could be considered to enable the US to take maximum advantage of the coming flood of biological discovery and position itself to be the leader in technologies derived from it? (3) What are the implications of a newly integrated biology on infrastructural needs? How should infrastructural priorities be identified and planned for? (4) What are the implications for the life sciences research culture of a newly integrated approach to biology? (5) Are changes needed in biology education to take advantage of advances in biological science? The committee will recommend actions that federal policy makers can take to ensure that the United States takes the lead in the emergence of a newly predictive biological science that will contribute to innovative solutions for practical problems and the development of robust and sustainable new technologies.

More information on BLS can be found on its
website

<http://dels.nas.edu/bls>



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