USGS Mission

Provide impartial information on the health of our ecosystems and environment, the natural hazards that threaten us, the natural resources we rely on, the impacts of climate and land-use change, and the core science systems that help us provide timely, relevant, and useable information.

Partners/Customers

DOI Bureaus, State Agencies, Other Federal Agencies, NGO's,

Scientific Community

USGS
science for a changing world

USGS Mission Areas/Expertise

Ecosystems – species management, land management/ restoration, biological threats, CRU

Core Science System - modeling, mapping, data delivery

Climate/Land Use Change – LULC change rates, causes, consequences (e.g., floods, water availability);

Energy and Minerals – mapping, resource assessment

Environmental Health - ecological and human health, exposure to disease agents

Natural Hazards - observations, analyses, and research to increase resiliency to natural hazards

Water - capabilities, tools, and delivery systems to meet the Nation's water-resource needs

USGS
science for a changing world

USGS – Relevance to Managers

Long term data/interpretation – NWIS, Chesapeake Bay nutrient/ sediment trends, breeding bird survey, SET network, NGS

Decision analysis and support tools –

SDM/AM - decisions with uncertainty, ESA species status assessments, Herring River Estuary Restoration,

Integrated spatial modeling – mapping groundwater stream inputs, CBay fish habitat tool, ginseng on NF, Hurricane Sandy (surge, contaminants models)

Research Applications – Genetics/genomics, Lidar/3-D mapping, ecosystem services, weather radar/bird migration, Ford - acoustic bat monitoring

USGS Science at NEAFWA meeting – NAACC prioritization tool (StreamStats data); Restoring brook trout connectivity (King - genetics; Letcher – movement); Ches Bay fishery management (land-use trends analysis)

Landscape Conservation Research Framework

Ecological research focus

- Evolutionary
- Population and community
- Organismal
- Physical/habitat

Techniques

- GIS and remote sensing
- Modeling and simulation
- Field surveys and experiments
- Genetics and genomics
- Experimental lab studies
- Water quality and habitat assessment

Research applications

- Population Viability Analysis
- Bioassessment
- Species distribution modeling
- Land-use analysis
- Climate effects forecasting
- Assessing adaptive potential

Decision-relevant management applications

- Decision Analysis
- Risk /Vulnerability Assessment
- Ecosystem services analysis
- Outreach