



Columbia Environmental - Research Center Biological Resources Division - Central Region

Mission: The center provides leadership in addressing national and international environmental contaminant issues and assessing effects of habitat alterations on aquatic and terrestrial ecosystems.

The Columbia Environmental Research Center (CERC), located in Columbia, Missouri, is the only USGS research laboratory capable of conducting research on highly toxic compounds, such as dioxin.

CERC researchers conduct small- and large-scale studies on national and international environmental contamination: (1) to discover how pollutants move through the environment, (2) to identify potentially vulnerable environments, and (3) to evaluate the effectiveness of remedial activities.

CERC scientists also assess how habitat alterations affect aquatic and terrestrial ecosystems, such as lakes, large river flood plains, coastal habitats, and wetlands.

CERC is at the forefront in addressing current and emerging natural resource issues.

Partners co-located at CERC are the Big Muddy National Wildlife Refuge, for the preservation and restoration of the Missouri River Floodplain; and the Missouri



Release of sea turtle hatchlings at Padre Island National Seashore, TX.

Resource Assessment Partnership (MoRAP).

The Center's Core Capabilities

Environmental Toxicology and Chemistry - Investigations to detect, understand, and evaluate the effects of contaminants on the quality of terrestrial and aquatic ecosystems and their component species. The Center provides the lead role within BRD for contaminant research through ecotoxicological investigations :

- evaluating mechanisms of toxic actions
- evaluating biochemical and

physiological responses to contaminant exposure

- identifying surrogate test species to protect threatened and endangered species and their habitats
- establishing contaminant assessment approaches to protect ecosystems.

Ecological Research - Focuses on the effects of environmental stressors on the structure and function of aquatic and terrestrial ecosystems at the population, community, and ecosystem levels of biological organization.

Core Capabilities and Field Stations

Ecological research categories:

- baseline studies of the structure and function of populations, communities, and ecosystems
- evaluation of bioindicators of environmental stress at multiple levels of biological organization
- assessment of ecosystem health from a holistic perspective.

Large River Ecology -Focuses on ecological consequences of land-use and management actions on riverine environments by identifying and predicting the interactions between abiotic



The CERC International Falls Biological Station is situated in the southern Canadian Shield, a geologic area representing some of the oldest rock formations exposed anywhere in the world. Glaciation created hundreds of depressions now forested boreal lakes and rivers.

and biotic components. These investigations are conducted largely through partnerships with other organizations, including universities, and federal and state agencies for planning land and water use in areas along the Missouri River, the Lower Rio Grande, and other large river systems.

Information Technology - CERC continues to expand its efforts to provide researchers and decision-makers with traditional and contemporary data distribution and management systems to retrieve the most current scientific information. Discovery, access, and full utilization of information

sources available through the Internet and World Wide Web are emphasized. The Center plays an active role in the development of the National Biological Information Infrastructure (NBII), a network of distributed databases and information sources for biological information.

CERC Field Stations

International Falls Biological Station; International Falls, MN

Yankton Field Research Station; Yankton, SD

Jackson Field Research Station; Jackson, WY

Brazos Field Research Station; College Station, TX

Texas Gulf Coast Field Research Station; Corpus Christi, TX



Sediment quality assessment surveys, conducted by CERC scientists in marine and estuarine ecosystems, are underway to identify areas affected by contaminants.



Prairie potholes, wetlands in the arid western plains of the United States are a focus of CERC contaminant research, investigating effects of agricultural practices including chemical use and habitat destruction.

Marine Ecotoxicology Research Station; Padre Island, TX

Padre Island Research Station; Padre Island, TX

Information:

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