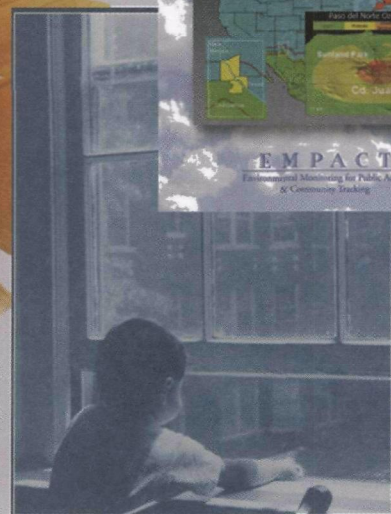
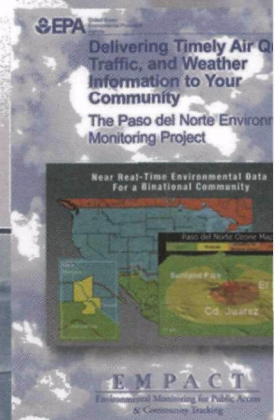
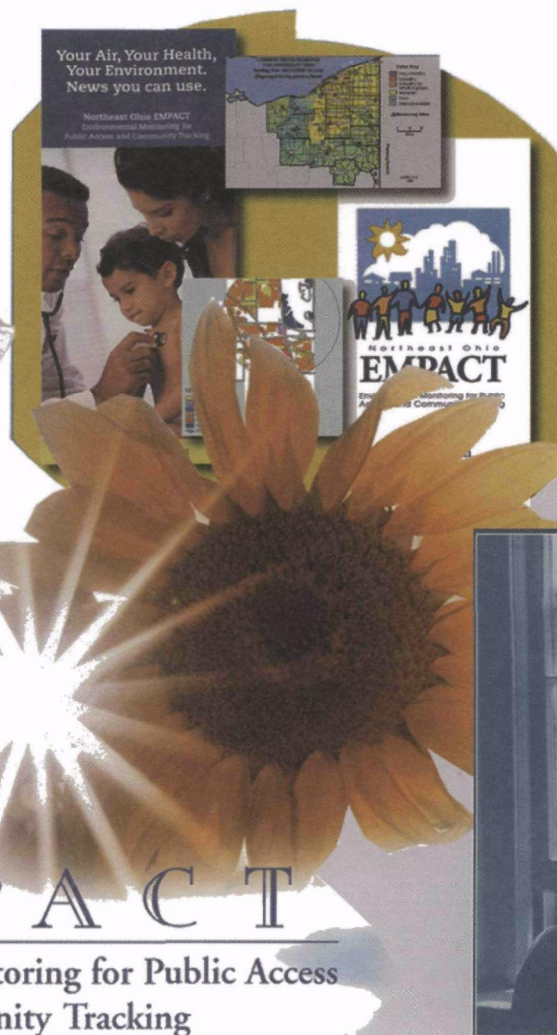
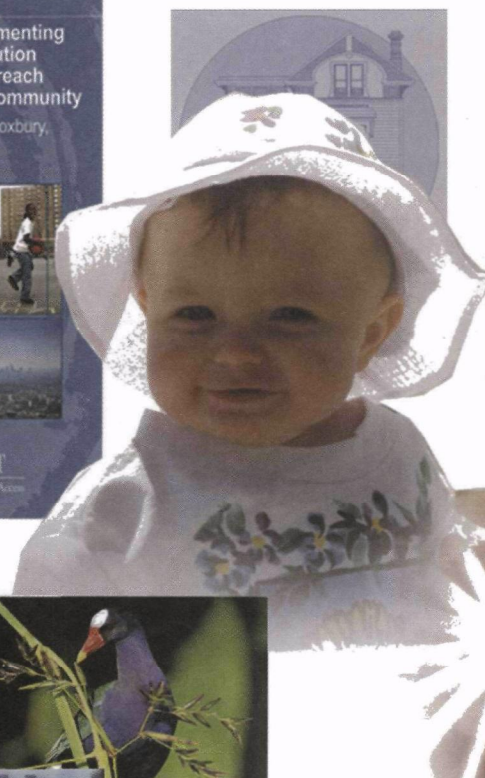
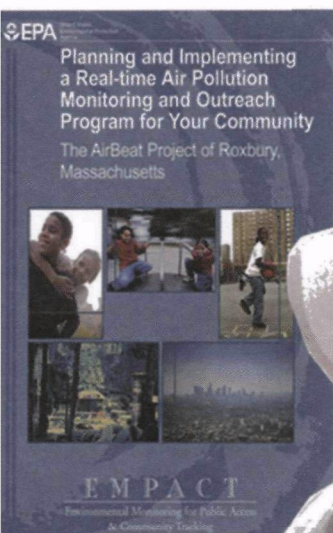


The EMPACT Collection



EMPACT

Environmental Monitoring for Public Access
& Community Tracking

Technology Transfer / Risk Communication Products Supporting EPA's Real-Time Environmental Monitoring, Data Delivery, and Public Outreach Program

The Technology Transfer and Support Division (TTSD) of U.S. EPA Office of Research and Development's National Risk Management Research Laboratory has completed a series of technology transfer and risk communication handbooks, case studies, and summary reports for community-based environmental monitoring projects developed under U.S. EPA's Environmental Monitoring for Public Access and Community Tracking (EMPACT) Program.

The EMPACT Program takes advantage of new technologies to provide communities with timely, accurate and understandable environmental information they can use to make informed day-to-day decisions about their lives. EMPACT publications prepared by TTSD cover a wide range of environmental issues, including air and water quality, residential lead contamination, beach and recreational water contamination, ultraviolet radiation, bird migration, and overall ecosystem quality. Publications have also been prepared that highlight environmental school curriculums and risk communication tools used in the EMPACT Program.

The publications provide case studies and contains suggestions and recommendations that can be used to design, employ and maintain comparable environmental monitoring, data management/delivery, and communication/outreach programs.

Electronic versions of each publication (in pdf format) are available for viewing or downloading from EPA ORD's Technology Transfer Web site -- <http://www.epa.gov/ttbnrml>. In addition, print and CD ROM versions are or will be available for ordering (free-of-charge) from this Web site.

The following provides a complete description of each transfer and risk communication product developed for the Environmental Monitoring Program.

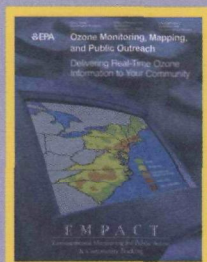
Environmental Monitoring Program Compilation CD



The EMPACT Collection, Technology Transfer / Risk Communication Products Supporting EPA's Real-Time Environmental Monitoring, Data Delivery, and Public Outreach Program. EPA/625/C-03/007 (CD ROM)

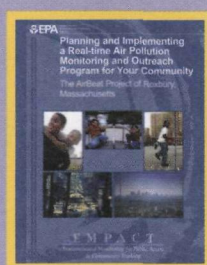
An EMPACT publications CD has been prepared containing a compilation of handbooks, case studies and summary reports prepared under the EMPACT program. Individual projects cover a wide range of environmental issues, including air and water quality, residential lead contamination, beach and recreational water contamination, ultraviolet radiation, bird migration and overall ecosystem quality.

Air Quality Monitoring Handbooks and Reports



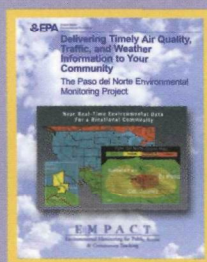
Ozone Monitoring, Mapping and Public Outreach / Delivering Real-Time Ozone Information to Your Community, EPA/625/R-99/007 (print version), EPA/625/C-99/002 (CD ROM)

The handbook provides step-by-step instructions on how to: 1) design, site, operate, and maintain an ozone monitoring network; 2) install, configure, and operate the automatic data transfer system; 3) use MapGen software to create still-frame and animated ozone maps; and 4) develop an outreach plan to communicate information about real-time ozone levels and health effects to the public.



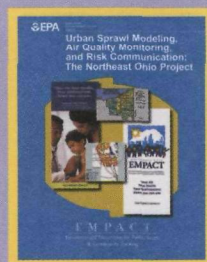
Planning and Implementing a Real-Time Air Pollution Monitoring and Outreach Program for Your Community / The AirBeat Project of Roxbury, Massachusetts, EPA/625/R-02/012 (print version), EPA/625/C-02/012 (CD ROM)

The purpose of AirBeat is to make real-time air quality monitoring information (for ozone, black carbon, and fine particulate) available to the Boston community of Roxbury. This handbook provides a case study of the AirBeat project (with lessons-learned and success stories) and contains suggestions and recommendations that can be used to design, employ and maintain air quality monitoring, data management and delivery, and communication and outreach systems comparable to that employed for the AirBeat Project.



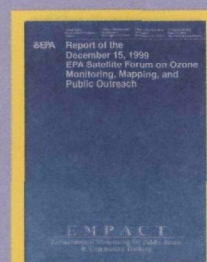
Delivering Timely Air Quality, Traffic and Weather Information to Your Community / The Paso del Norte Environmental Monitoring Project, EPA/625/R-02/013 (print version), EPA/625/C-02/013 (CD ROM)

The handbook outlines the steps needed for communities to adapt/adopt projects similar to the Paso del Norte Environmental Monitoring Project. The Paso del Norte Project is a mobile vehicle emissions project that involves the international community of El Paso, Texas, Sundland Park, New Mexico, and Juarez, Mexico. The Project is building a regional clearinghouse for real-time air quality (O₃, CO, SO₂, PM₁₀, PM_{2.5}), traffic and transit data. Air quality data is being combined with live-action traffic on the TX freeways and four international bridges to create a predictive model for air quality based on traffic volume. A communication and outreach program has also been implemented, including a K through 12 educational campaign and the use of radio and TV news stations (in Mexico as well) to inform the public.



Urban Sprawl Modeling, Air Quality Monitoring, and Risk Communication / The Northeast Ohio Project, EPA/625/R-02/016 (print version), EPA/625/C-02/016 (CD ROM)

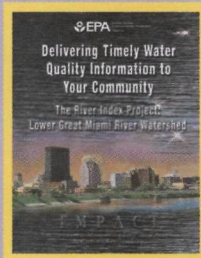
The Northeast Ohio Urban Sprawl, Air Quality Monitoring, and Communications Project provides local officials, community planners, and other groups in Northeast Ohio with environmental impact information posed by urban sprawl; provides near real-time data on air quality related to individual and public health; and conducts an extensive community outreach program on sprawl and air quality issues. A handbook has been prepared for this Project highlighting its principal components and providing successes and lessons-learned to other communities who are interested in developing comparable or refining existing projects.



Report of the December 15, 1999 EPA Satellite Forum on Ozone Monitoring, Mapping and Public Outreach. EPA/625/R-00/003 (print version)

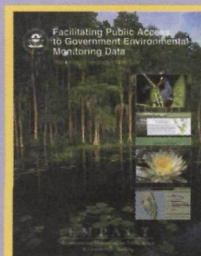
This report summarizes a satellite forum on technology transfer tools developed for ozone monitoring, mapping, and public outreach. This forum highlighted EPA's Ozone Mapping (AirNow) Project that provides the public with real-time information about ozone pollution in an easy-to-understand pictorial format. AirNow is a collaborative effort among EPA, state and local air quality agencies, and regional organizations to collect, quality assure and transfer real-time air quality information to the public. Participants in the satellite forum included representatives of EPA and state and local air agencies.

Estuary, Lake and River Water Quality Monitoring Handbooks



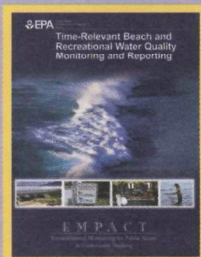
Delivering Timely Water Quality Information to Your Community / The Miami River Index Project. EPA/625/R-03/002 (print version), EPA/625/C-03/002 (CD ROM)

The Miami River Index Project disseminates timely information to the public about the quality of the waters in the Lower Great Miami River Watershed. The Project includes systems to collect, retrieve, manage, and analyze real-time water quality data and develop water quality and river indices. This handbook presents a case study of the River Index Project, describing how real-time water quality data are collected, processed and communicated to the public. The handbook also provides readers with information on how to develop similar water quality monitoring, data processing, and outreach programs for their community.



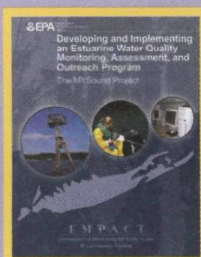
Facilitating Public Access to Government Environmental Monitoring Data / The Living Everglades Web Site, EPA/625/R-02/020 (print version), EPA/625/C-02/020 (CD ROM)

A handbook has been prepared to document The Living Everglades Project. The Project makes information on the health of the Florida Everglades ecosystem more accessible and understandable to the residents, scientists, teachers, and government agencies of South Florida by disseminating public information materials and establishing an Internet site called The Living Everglades. These tools serve as a public information and communication network for the ecosystem.



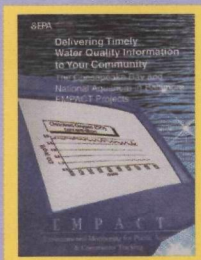
Time-Relevant Beach and Recreational Water Quality Monitoring and Reporting, EPA/625/R-02/017 (print version), EPA/625/C-02/017 (CD ROM)

The handbook provides guidance for planning and implementing a beach and recreational water quality monitoring, data management/delivery, and public outreach program. It is based on case studies of three water quality projects – the Lower Charles River/Boston Harbor Water Quality Monitoring and Reporting Project, the Narragansett Bay Beach Monitoring and Notification Project, and the Milwaukee Recreational Water Quality MetroGrant Project. These projects address water quality concerns associated with recreational boating and swimming principally through water-borne pathogen monitoring, issuing water quality advisories, developing and using predictive beach closure water quality models, and developing effective beach closure and re-opening policies.



Developing and Implementing an Estuarine Water Quality Monitoring, Assessment, and Outreach Program / The MYSound Project, EPA/625/R-02/010 (print version), EPA/625/C-02/010 (CD ROM)

The handbook highlights water quality monitoring technologies used by the Long Island Sound Marine Monitoring (MYSound) Project. MYSound uses telemetering data buoys equipped with sensors to collect real-time temperature, conductivity/salinity, and dissolved oxygen data in the Sound. Four monitoring stations currently form the basic network. The monitoring data also support re-calibration and verification of water quality predictive models under different water quality and circulation conditions. Data is posted on a website and advertised through a variety of outreach efforts.



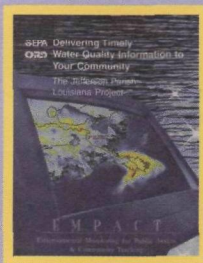
Delivering Timely Water Quality Information to Your Community / The Chesapeake Bay and National Aquarium in Baltimore EMPACT Projects, EPA/625/R-02/018 (print version), EPA/625/C-02/018 (CD ROM)

The handbook provides state/local governments and other groups with recommendations on how to design, employ, and maintain water quality monitoring, data management/delivery, and communications systems. The handbook is based on case studies of the Chesapeake Bay and Fort McHenry Tidal Wetland Restoration Projects. Project components include: 1) collecting and disseminating chemical and physical data that contribute to the development of harmful algal blooms and low dissolved oxygen in the Chesapeake and other coastal bays, 2) providing timely in-situ data supplementing *Pfiesteria* surveillance monitoring and Submerged Aquatic Vegetation (SAV) restoration efforts by the State of Maryland, and 3) providing comprehensive assessments of factors contributing to outbreaks of *Pfiesteria* and *Pfiesteria*-like organisms, fish kills, low dissolved oxygen and the loss of SAV habitat.



Delivering Timely Water Quality Information to Your Community / Lake Access, Minneapolis Project, EPA/625/R-00/013 (print version), EPA/625/C-00/013 (CD ROM version)

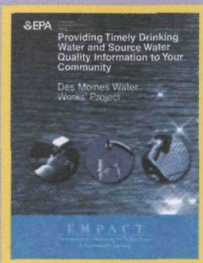
The handbook showcases the Lake Access, Minneapolis Project. The Project provides lake water quality data, interpretation and assistance in the application of low-cost intervention and risk reduction measures. It is an educational and intervention effort to reduce the risk of further eutrophication in suburban lakes. The handbook provides guidance on 1) designing and operating water quality monitoring systems, 2) collecting, transferring, managing and depicting time-relevant water quality data, and 4) communicating time-relevant water quality information to the public.



Delivering Timely Water Quality Information to Your Community / The Jefferson Parish Louisiana Project. EPA/625/R-01/005 (print version), EPA/625/C-01/005, (CD ROM)

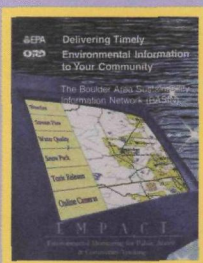
The Jefferson Parish Louisiana Project takes advantage of both remote sampling and remote sensing (satellite) data to provide water quality information to the Jefferson Parish, Louisiana community in near real time. The handbook provides a project case study and recommendations on how to: 1) design, install, operate, and maintain a remote water sample collection unit; 2) obtain, process, interpret, and manage satellite data; 3) use satellite imagery for monitoring water quality; 4) and develop an outreach plan to communicate information about real time water quality to the public.

Drinking/Storm Water Quality Handbooks



Providing Timely Drinking Water and Source Water Quality Information to Your Community / The Des Moines Water Works Project, EPA/625/R-01/006 (print version), EPA/625/C-01/006 (CD ROM)

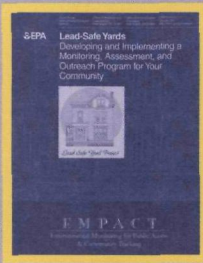
The handbook addresses the planning and implementation steps that were needed to develop, operate and maintain the time-relevant drinking water quality monitoring and data delivery/management systems of Des Moines Water Works (DMWW). The handbook highlights: 1) how DMWW disseminates time-relevant drinking water (including source and treated water) quality data to the public, 2) how the existing urban watershed impacts the drinking water supply, and 3) how DMWW established and maintains an education and outreach program through their website and other educational/outreach materials.



Delivering Timely Environmental Information to Your Community / The Boulder Area Sustainability Information Network (BASIN) Project, EPA/625/R-01/010 (print version), EPA/625/C-01/010 (CD ROM)

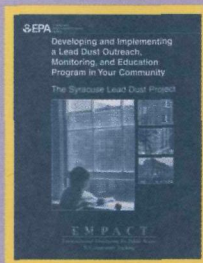
The handbook provides a case study on how the Boulder Area Sustainability Information Network (BASIN): 1) collects and analyzes water samples within the Boulder Co. area watershed, 2) presents timely and spatial environmental data on a Web site using (Practical Extraction Report Language) PERL programming, 3) developed an outreach plan to communicate timely environmental information to the public, and 4) established partnerships with potential data providers.

Residential Lead Contamination Handbooks



Lead Safe Yards / Developing and Implementing a Monitoring, Assessment and Outreach Program for Your Community, EPA/625/R-00/012 (print version), EPA/625/C-00/012 (CD ROM)

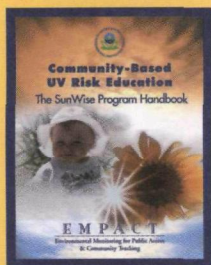
The handbook presents a case study showing how one community in Boston is using a variety of low-cost techniques, such as landscaping and yard treatments, to reduce children's exposure to elevated levels of lead in residential soil. The handbook provides step-by-step guidance for developing a similar program to address the problem of lead in soil in other communities. Much of the information will also be useful to individual homeowners interested in finding low-cost ways to reduce children's exposure to lead in soil.



Developing and Implementing a Lead Dust Outreach, Monitoring, and Education Program in Your Community / The Syracuse Lead Dust Project, EPA/625/R-02/014 (print version), EPA/625/C-02/014 (CD ROM)

The Lead Dust Project measures the lead dust content in homes within the City of Syracuse, NY. The project contains an educational component which targets families and landlords to inform them about lead dust hazards and appropriate control measures. Aided by community-based organization partners, HEPA vacuums are made available for loan to families to reduce lead dust level in their homes. This Lead Dust Project case-study highlights how the Project was designed and implemented. Emphasis has been placed on providing success stories and lessons-learned from this and other lead dust projects in an effort to assist new communities who are interested in adopting comparable programs.

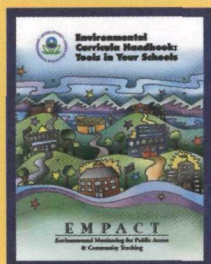
Ultraviolet Radiation Handbook



Community-Based UV Risk Education / The SunWise Program Handbook, EPA/625/R-02/008, EPA/625/C-02/008 (CD ROM published)

This handbook highlights how one project, the Sunwise UV Risk Education Project: 1) increases the public's understanding of the importance of ultraviolet (UV) light as a carcinogenic and skin aging agent, 2) disseminates time-relevant information on when UV exposure should be minimized, 3) uses the UV Index as a risk communication tool, and 4) provides the general public and specific target audiences with information about the human health risks from exposure to UV light. The handbook also contains descriptions of the Project's outreach efforts to raise the community awareness to these risks.

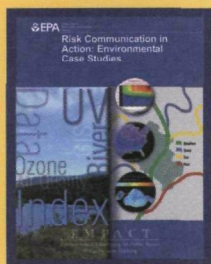
Environmental School Curriculum Handbook



Environmental Curricula Handbook: Tools in Your Schools, EPA/625/R-02/009 (print version), EPA/625/C-02/009 (CD ROM)

This handbook provides teachers and other educators with guidance on how to teach students about environmental issues related to air, water, and soil quality; and assists educators in designing lesson plans and activities. It highlights a host of real-time environmental monitoring projects that have developed or are developing curricula and other classroom materials to foster student learning. The handbook can be used by any teacher, from kindergarten through Grade 12. College-level materials have also been developed for some projects.

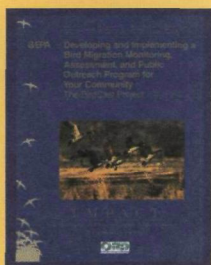
Risk Communication Handbook



Risk Communication in Action, Environmental Case Studies Handbook, EPA/625/R-02/011 (print version), EPA/625/C-02/011 (CD ROM)

The handbook discusses data visualization and data interpretation tools that municipal, state, and federal government agencies and community groups can use to effectively communicate environmental data and issues to the public. The tools described include maps, color-coding, icons, graphs, simulations, indexes, and publications. The handbook also provides guidance for using these tools and presents detailed case studies. Each case study includes a project history, effective methods used, and lessons learned.

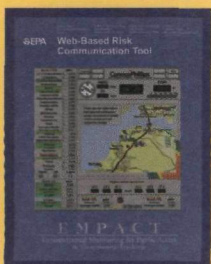
Bird Migration Monitoring Handbook



Developing and Implementing a Bird Migration Monitoring, Assessment, and Public Outreach Program for Your Community / The BirdCast Project, EPA/625/R 01/007 (print version), EPA/625/C-01/007 (CD ROM)

The handbook presents a case study showing how the BirdCast Project, covering the mid-Atlantic coast of the United States, provides information that allows property managers and the general public to assist migratory birds. It also provides guidance on how to: 1) identify target communities that would be interested in reporting on and following the progress of bird migration, 2) record and present real-time information about bird migration using radar, weather information, and acoustic monitoring, 3) collect groundtruthing information from volunteer birders and present it to the public, and 4) provide education and outreach to members of the public about what to do when migratory birds pass through their area.

Web-Based Risk Communication Tool



A Web-based risk communication tool has been developed for an air toxic monitoring program at a petroleum refinery in the San Francisco Bay Area. The Web site provides real-time air toxic data as well as a discussion of the associated public health risks to surrounding communities. The Web site is currently maintained by Contra Costa county.



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