



Metadata to Improve the Findability of EPA's Web Content

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May 2010



Why Needed?

- We have a huge collection of content
- ACSI respondents consistently rate Navigation and Search as working poorly at EPA.GOV
- Half of home page visitors use search
- EPA.GOV collection has a very long tail

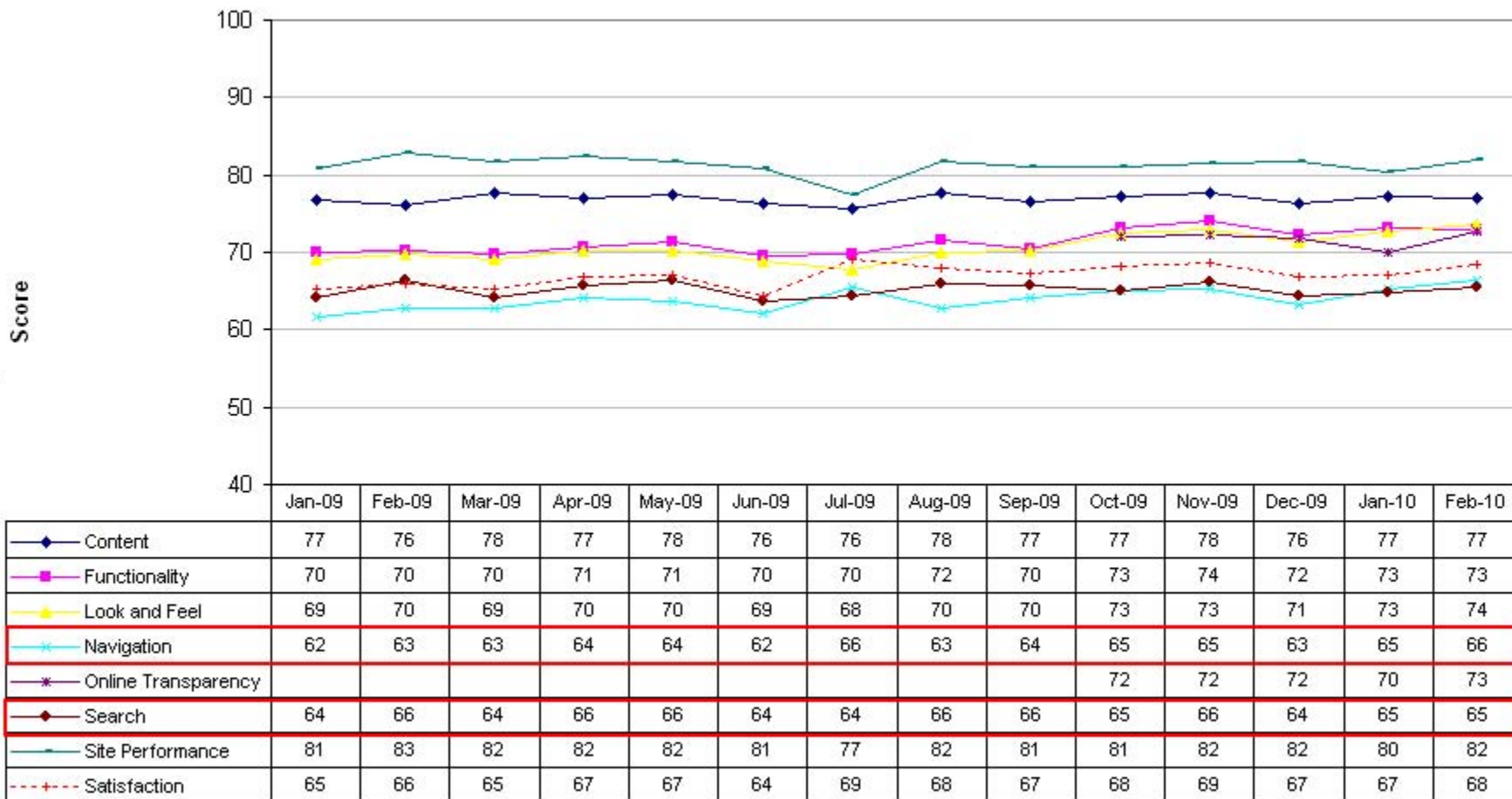


EPA Public Access Collection

- **528,212** htm/l & PDF files in our searchable collection, as of 4/9/2010 on www.epa.gov (source NL Collection Audit)
- **533,011** Page views from Domino/Cfpub in March 2010 (source: Maxamine Traffic Summary)



EPA V3 (Oct 09 - Present)
 Elements with Satisfaction Trendlines
 February 01, 2010 - February 28, 2010

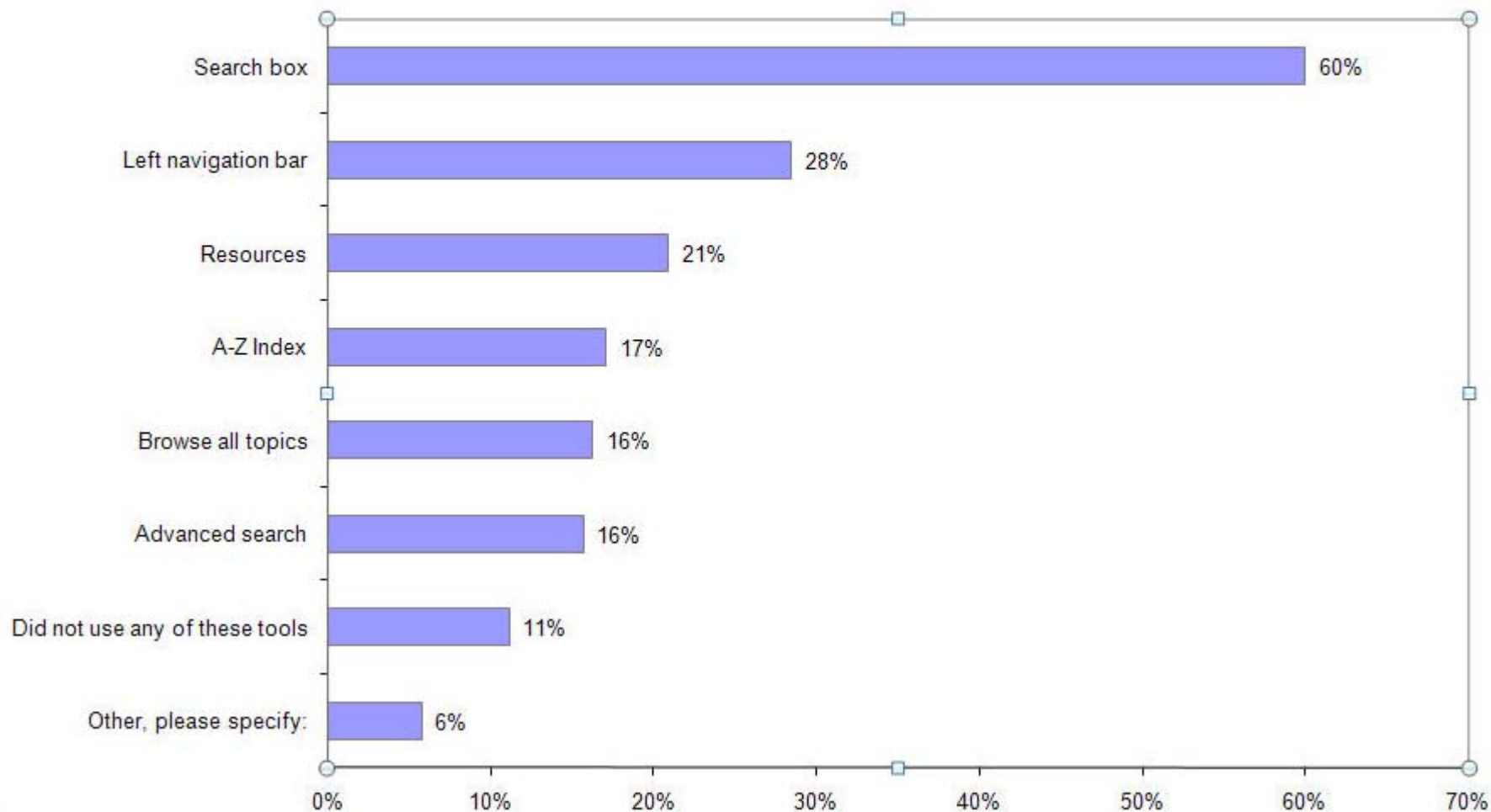


Time Periods



EPA V3 (Oct 09 - Present)
Please check each of the following tools you used to locate information on the site today:
March 01, 2010 - March 31, 2010

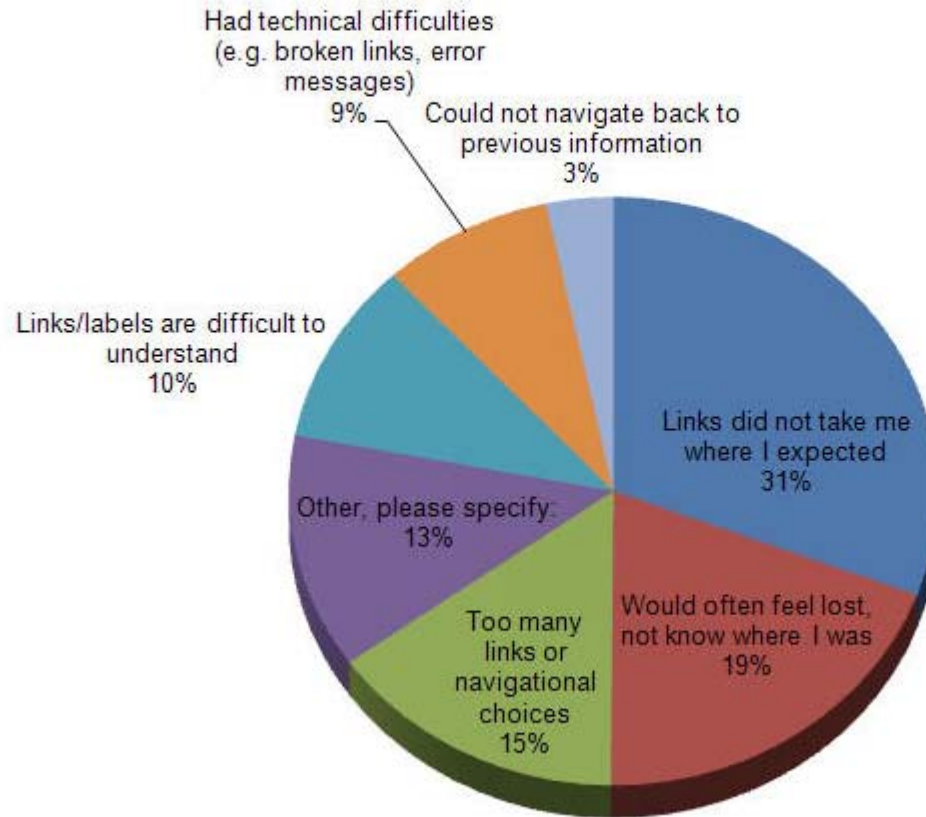
(N: 1890)





EPA V3 (Oct 09 - Present)
Which of the following navigation difficulties did you have:
March 01, 2010 - March 31, 2010

(N: 387)





Learn about your site with our tools

Web Analytics Tools Used at EPA

[Accenture Digital Diagnostics Engine](#) (formerly known as **Maxamine™**)—evaluates the characteristics of a website that contribute to user experience and site effectiveness.

[Analog](#)—analyses the usage on your web server.

[American Customer Satisfaction Index](#)—measures the satisfaction of consumers across the United States.

[Bloodhound](#)—presents search-optimization-related information for a given page

[CrazyEgg™](#)—presents information about the number and origins of clicks for web page elements as a graphical overlay on the web page.

[EPA Rottweiler](#)—helps identify files you should consider removing from your public access TSSMS area, specifically old files, files that have not been viewed recently, redundant files, and non-standard file types

[Enterprise Search Engine Query Reports](#)—enables EPA managers and content providers to see what customers are searching for.

https://kestrel.rtpnc.epa.gov/webwiki/index.php/Web_Analytics



For example...

A Bloodhound report will show:

- Page title, meta keywords and meta description - all important for search engines and the search results people see
- Search phrases people used to find this page from Internet search engines like Google (called In-Bound Search Terms)
- Link text people clicked on from other pages that brought them to this page (called In-Link Text)
- Browser Addresses (like whitehouse.gov) of the people who came to this page
- Referrers pages, i.e., the pages people were on just before they came to this page
- Phrases people used in searches in the EPA 'search box' from this page (what they were looking for after they saw this page)

Using Bloodhound reports, you can:

- Use the 'Embedded Page Information' to add useful meta tags to that page
- Browse search terms to suggest better wording in the page
- Browse link text in referring pages to find how others see you
- Find pages that are commonly used to get to this page (talk to their owners, make them your partners)
- Find how your page leads to searches for other things (to help you decide whether you can help folks with new information on your page or a direct link to relevant page)



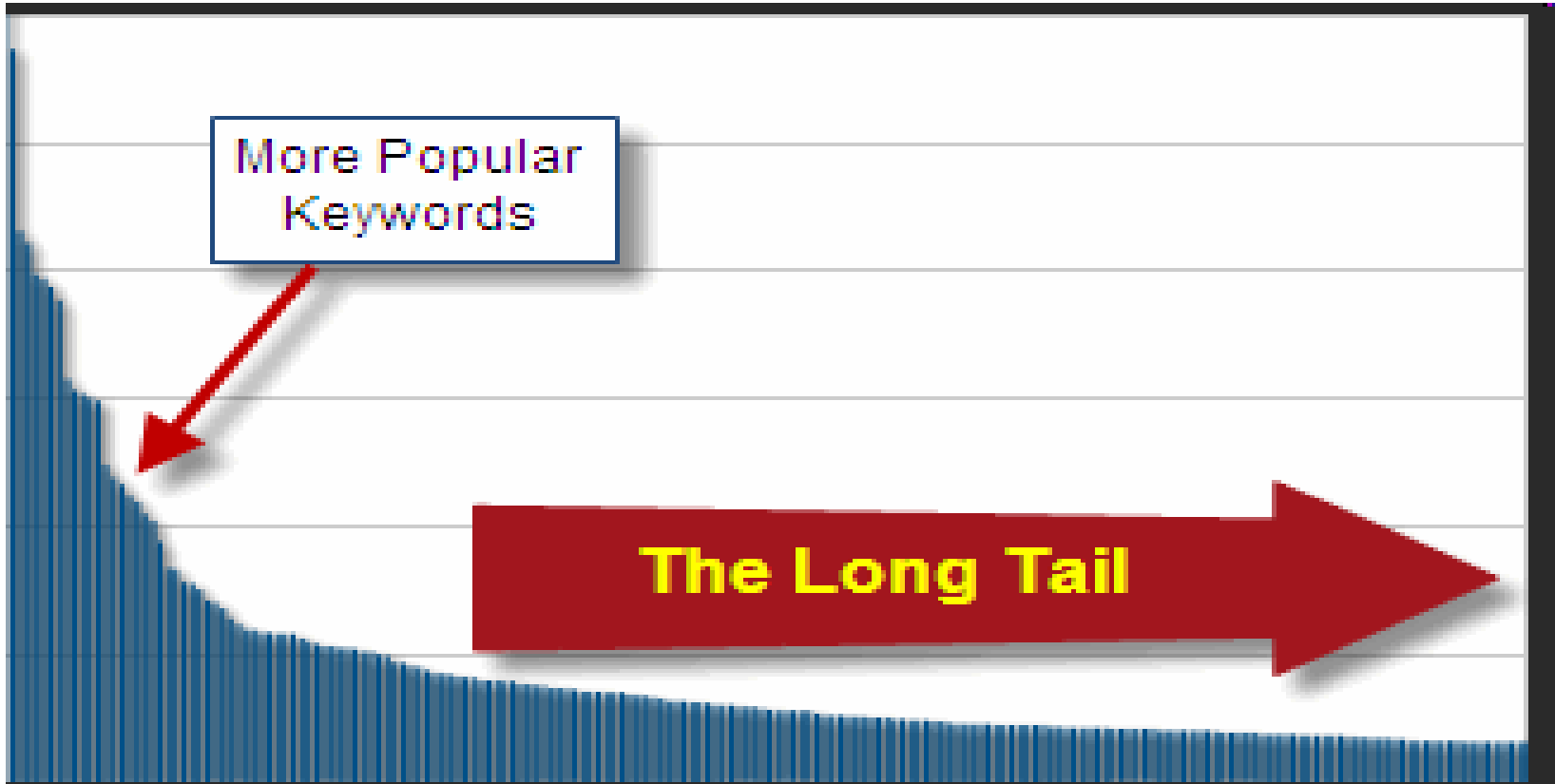
March 2010

Top Searches from EPA Pages

4,330	lead
3,577	secondary containment
2,440	global warming
2,232	lead paint
1,839	Blank Search
1,834	estuary
1,720	rrp
1,714	radon
1,515	asbestos
1,261	mold



Many searches on many different terms



All results | [Web pages](#) | [PDF](#)

relevance date | Show per page

Results 1 – 10 of **102,923** for *lead* within the collection.

Lead in Paint, Dust, and Soil

"These pages are designed to give you access to information on all aspects of the Federal lead poisoning prevention program." 04-15-2010
<http://www.epa.gov/lead> (HTML)

Lead in Drinking Water

"This page provides information about lead in drinking water." 07-06-2006
<http://www.epa.gov/safewater/lead> (HTML)

Mid – Atlantic Region: Lead in Washington, DC Drinking Water

"This site contains information for residents of the District of Columbia to address their concerns about elevated levels of lead in drinking water." 03-11-2010
<http://www.epa.gov/dclead> (HTML)

Addressing Lead At Superfund Sites

"Lead contamination at Superfund sites presents a threat to human health and the environment. This Web site describes EPA's approach to addressing those risks, and the challenges of remediating lead contamination at Superfund sites." 03-17-2010
<http://www.epa.gov/superfund/health/contaminants/lead> (HTML)

Lead Compounds

"Provides information about lead compounds." 04-14-2010
<http://www.epa.gov/ttn/atw/hlthef/lead.html> (HTML)

Air Trends: Lead

"Provides information about lead." 04-14-2010
<http://www.epa.gov/airtrends/lead.html> (HTML)

Related questions & answers

Where can I find information about **lead** or find EPA **lead** publications?

I want to renovate my home or property. Should I be concerned about **lead**? Can my home be inspected for **lead**?

How do the regulations for **lead** during renovation, repair and painting apply to my business? How do I get certified?

[View all 99 answers](#)

Narrow by subject

-  Lead
-  Cleanup
-  Superfund
-  Grants
-  Health Risks
-  Research
-  Cadmium
-  Import / Export
-  Acid Rain
-  Health Effects
-  Brownfields
-  Develop Drinking Water Standards



All results Web pages PDF

relevance date | Show 10 per page

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Lead in Paint, Dust, and Soil

"These pages are designed to give you access to information on all aspects of the Federal lead poisoning prevention program." 04-15-2010

<http://www.epa.gov/lead> (HTML)

this is our best overall page on lead

Lead in Drinking Water

"This page provides information about lead in drinking water." 07-06-2006

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Lead Compounds

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- Lead
- Cleanup
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All results Web pages PDF

relevance date | Show 50 per page

Results 1 - 50 of 38,716 for *climate change* within all areas of the EPA.

Climate Change

"Site gives information and links to information on global warming."

06-22-2009

<http://www.epa.gov/climatechange> (HTML)

Climate Change - Waste

"Discusses the connection between climate change and waste."

10-19-2006

<http://www.epa.gov/climatechange/wycd/waste> (HTML)

Transportation and Climate

"It features information on greenhouse gas emissions from transportation, what you can do to reduce your personal emissions from driving, regulations and standards, tools and analysis, publications, and related links."

07-14-2008

<http://www.epa.gov/otaq/climate> (HTML)

Climate Change - Science

"Discusses the effects of the rise in the Earth's temperature over the past century."

06-12-2009

<http://www.epa.gov/climatechange/science> (HTML)

Climate Change Science Program

"Provides information about the Climate Change Science Program."

10-19-2006

<http://www.epa.gov/climatechange/policy/ccsp.html> (HTML)

Related questions & answers

Where can I find information on **climate change** and the greenhouse effect?

When was **climate change** discovered?

What is the EPA doing about **climate change**?

[View all 15 answers](#)

Narrow by subject

- Research
- Floods
- Energy Industry
- Community Involvement
- Grants
- Scientific & Technological Research & Innovation
- Pollution Prevention
- Marine Ecosystems
- Stratospheric Ozone Protection
- Plants & Animals
- Acid Rain
- Health Effects
- Voluntary Partnerships



Adding more metadata can help

The required metadata fields are:

- **Title:** Title is particularly important, since it is used so extensively. **Include critical search terms in the title.** Don't use acronyms unless you spell it out within the description or keyword fields.
- **Description:** A short description of the content, up to 192 characters are allowed within the WebCMS. The description should be succinct, yet add substantive information beyond what's available in the title. Often you can find an existing sentence in the first paragraph of the document. (see example below)
- **Author:** is the organization that published the document. List the organization in the same manner that we do for the creator field. US EPA, AA/RA, Real Owner (Lab/Center/Office/Division/Branch) with the last and real owner spelled out
 - **Examples**
 - Program Office: US EPA, Office of Air and Radiation
 - Lab: US EPA, ORD, National Exposure Research Laboratory
 - SubOffice: US EPA, OW, Office of Science and Technology
 - Division: US EPA, ORD, Ecosystem Research Division
- **Open Keywords:** Additional term(s), not in a taxonomy, which an author or editor believes is important for retrieval. Examples include "the green book" or "eROE."



Required cont...

Note: The remaining fields listed below are best used within the WebCMS.

- **Agency Function**: Government Service related to the mission of the Agency. This is a list based on the EPA Business Reference Model. It has very bureaucratic terms. Examples include: " Environmental Management " "Prevent Pollution" or "Research and Development."
- **Information Type/Content Type**: Field that indicates what type of information this is. For example, Factsheets or Data Files and Maps.
- **Channel**: Short list of content distribution and publication channels for the top level of the information architecture. Choices are:
 - **Laws & Regulations** - Materials and content related to the legal and regulatory responsibilities and programs of the agency. Including, but not limited to, compliance and enforcement activities, guidance, regulatory development, permitting programs, etc.
 - **Science & Technology** - Materials, tools and content and related to the scientific, technical and research activities of the agency. Including, but not limited to, methods, models, research programs and plans, laboratories, software and databases, science products, etc.
 - **Learn the Issues** - Educational and consumer information as well as general or basic information related to all topics. Including, but not limited to, health and safety information, environmental emergency information and contacts, household management information (e.g. energy efficiency, recycling and waste reduction, chemical use and storage info, etc.), local information, etc.
 - **About EPA**.- Information about the agency itself. Including, but not limited to, information about its leadership, its organization, its budget, its strategic plans, etc.

Note: General content specific to legal, scientific or agency topics may be tagged as both Learn the Issues and Science & Technology OR Laws & Regulations OR About EPA, however content that is specific to one of the other channels should not be categorized using the Learn the Issues channel.



More on Content Types

Content Type	Scope Note
Announcements & Schedules	News, News releases, Calendars, Comment schedules, Meeting Agendas, Requests for Proposals, job announcements, etc.
Collections & Lists	Lists of links, bibliographies, recommended resource lists, hubs, etc.
Contact Information	A list of the addresses, phone/FAX numbers, and affiliations of a specific individual, group of people, companies, organizations, publications, etc. May include additional information such as professional titles or credentials.
Data & Tools	Models, Methods, Maps, Data Files, Databases, Glossaries, Software, Tutorials, etc.
Overviews & Factsheets	Factsheets, Frequent Questions pages, Basic Info pages, etc.
Policies & Guidance	Internal and external policies, guidance and guidelines related to agency operations and/or regulatory compliance & enforcement. Includes proposed rules, MOUs, Judicial Decisions, International Agreements, etc.
Reports & Assessments	In-depth information, toxicity assessments, budgets, strategic plans, conference proceedings, etc.
Speeches, Testimony & Transcripts	A written record of dictated or recorded speech. Includes correspondence.



Optional Metadata

Environmental Laws, Regulations & Treaties - EPA specific regulation that is covered by or related to the content.

Industries - Industry that is covered by or related to the content.

Substance - Chemical or substance covered by or related to the content, included based on the amount of content at EPA on the specific substance.

Audiences - Controlled list of audience segments for whom the content is targeted.

Geographic Locations - Controlled list of Places which the content covers or is related to.

Topics - Environmental topics are divided into the following sub-facets:

- Emergencies & Cleanup
- Cooperation & Assistance
- Environmental Media
- Health Topics
- Regulatory & Industrial Topics
- Research, Analysis & Technology
- EPA Operations
- Pollution Prevention



- **Food Safety** - A system to ensure that illness or harm will not result from eating food.
 - ◆ **Fish & Wildlife Consumption** - Human use of fish and wildlife resources as a food source
- **Health Effects** - The result(s) of exposure to substances (such as radiation) that cause any harm to a person's health. It includes diseases, cancers, birth defects, genetic effects and death. [Washington State Dept. of Health]
 - ◆ **Chemical Sensitization** - Evidence suggests that some people may develop health problems characterized by effects such as dizziness, eye and throat irritation, chest tightness, and nasal congestion that appear whenever they are exposed to certain chemicals. People may react to even trace amounts of chemicals to which they have become "sensitized."
 - ◆ **Genetic Damage** - Harm to a person's genes which can be passed on to subsequent generations. [Hanford Information Health Network Glossary]
- **Respiratory Diseases**
 - ◆ **Asthma** - A chronic, inflammatory disorder of the airways characterized by wheezing, breathing difficulties, coughing, chest tightness, and other possible symptoms. People with asthma have very sensitive airways that are constantly on the verge of over-reacting to asthma triggers. [Glossary of Asthma Terms: Asthma and Allergy Foundation of America]
- **Health Risks** - Risk: The probability that something will cause injury or harm. [The Agency for Toxic Substances and Disease Registry (ATSDR)]
 - **Exposure** - Contact with a substance by swallowing, breathing, or touching the skin or eyes. Exposure may be short-term [acute exposure], of intermediate duration, or long-term [chronic exposure]. [The Agency for Toxic Substances and Disease Registry (ATSDR)]
 - ◆ **Acute Exposure** - Contact with a substance that occurs once or for only a short time (up to 14 days) [compare with chronic exposure]. [The Agency for Toxic Substances and Disease Registry (ATSDR)]
 - ◆ **Chronic Exposure** - Contact with a substance that occurs over a long time (more than 1 year) [compare with acute exposure] [The Agency for Toxic Substances and Disease Registry (ATSDR)]
 - ◆ **Cumulative Exposure** - The sum of exposures of an organism to a pollutant over a period of time. [Terms of Environment]
 - ◆ **Dermal Exposure** - Contact between a chemical and the skin. [Terms of Env]
 - ◆ **Dietary Exposure** - The condition of being subject to toxic substance(s) as a result of food consumption.
 - ◆ **Exposure Assessment** - The process of finding out how people come into contact with a hazardous substance, how often and for how long they are in contact with the substance, and how much of the substance they are in contact with. [The Agency for Toxic Substances and Disease Registry (ATSDR)]
 - ◆ **Exposure Concentration** - The concentration of a chemical or other pollutant representing a health threat in a given environment. [Terms of Env]
 - ◆ **Exposure Routes** - The way a chemical or pollutant enters an organism after contact; i.e., by ingestion, inhalation, or dermal absorption. [Terms of Env]
 - ◆ **Health Assessment** - Estimate of the nature and probability of adverse health effects in humans who may be exposed to chemicals in contaminated environmental media, now or in the future. [Human Health Risk Assessment, EPA.gov]
 - ◆ **Threshold Level** - Time-weighted average pollutant concentration values, exposure beyond which is likely to adversely affect human health. [Terms of Env]



What could we do with more metadata?

- Improve relevancy ranking (more data for search engine to work with)
- Filter on search results by:
 - Content Type (Factsheets, etc)
 - Any field
 - Create “canned” searches for regular users
 - Laws & Regs
 - Researchers & Scientists
 - Term in the title field



water

Search

[Advanced Search](#)

Search

Results 1 - 10 of about 10200 for water. Search took 0.07 seconds.

[Sort by date](#) / [Sort by relevance](#)

[Water](#) | [EPA](#)

[seal] US EPA. EPA Office of **Water**. Washington, DC. ... Recovery Act **Water** Program Efforts. EPA **Water** News. Read more **water** news releases. Regional Information. ... www.epa.gov/water/ - 21k - 2009-06-23

[Lead in Drinking Water](#) | [Safewater](#) | [Water](#) | [US EPA](#)

Jump to main content. [logo] US EPA. Lead in Drinking **Water**. ... More Lead Resources. Consumer Information 1-800-424-LEAD. Safe Drinking **Water** Hotline 1-800-426-4791 ... www.epa.gov/ogwdw/lead/ - 12k - 2007-09-26

[Water Programs](#) | [Region 9](#) | [US EPA](#)

EPA's Region 9, covering the Pacific Southwest, **Water** Division is responsible for providing clean and safe surface **water**, ground **water**, and drinking **water** and ... www.epa.gov/region09/water/ - 16k - 2010-03-29

[Water Science](#) | [US EPA](#)

... (December 18, 2009). Top of Page. **Water** Quality Standards. ... Drinking **Water** Standards are found elsewhere on our Web site. Top of Page. **Water** Quality Criteria. ... www.epa.gov/waterscience/ - 23k - 2010-03-19

[Sustainable Water Infrastructure](#) | [Region 9](#) | [US EPA](#)

Jump to main content. [logo] US EPA. Region 9: Sustainable **Water** Infrastructure. ... Sustainable **Water** Infrastructure News. All News » ... www.epa.gov/region09/waterinfrastructure/ - 19k - 2010-03-15

[EPA Ground Water and Drinking Water](#)

... The Office of Ground **Water** and Drinking **Water** (OGWDW), together with states, tribes, and its many partners, protects public health by ensuring safe drinking ... www.epa.gov/ogwdw/ - 33k - 2010-03-30

[Tribal Water Protection](#) | [Region 9: Water](#) | [US EPA](#)

Jump to main content. [logo] US EPA. Region 9: **Water** Program. ... You are here: EPA Home; Region 9; **Water**; Tribal **Water** Protection. Tribal **Water** Protection. ... www.epa.gov/region09/water/tribal/ - 15k - 2010-03-31

Filter by Metadata

Javascript must be enabled for narrowing.

[Channel = About EPA](#)

[Content Type = Data & Tools](#)

[Keyword = form](#)



water

Search

[Advanced Search](#)

Search

Results 1 - 10 of about 186 for **water** Search took 0.05 seconds.

[Sort by date](#) / [Sort by relevance](#)

[Dr. Susan D. Richardson | Ecosystems Research Division | US EPA](#)

... Susan Richardson's research has focused on the identification of new disinfection by-products (DBPs) in drinking **water** using GC/MS, LC/MS, and GC/IR ...

www.epa.gov/athens/staff/members/richardsonsusand/ - 29k - 2010-01-22

[Staff Member Page, US EPA | Ecosystems Research Division | US EPA](#)

... Degree, University, Major and Minor Fields, Years: Ph.D. Hydraulics and **Water** Resources. ... MS, Vanderbilt University, Environmental and **Water**, 1975-1977. ...

www.epa.gov/athens/staff/members/mccutcheonstevenc/ - 29k - 2010-01-13

[[More results from www.epa.gov/athens/staff/members](#)]

[Region 8 Nonpoint Source Program Contacts | Region 8 | US EPA](#)

... Nations. You are here: EPA Home; Region 8; **Water**; nps; Region 8 Nonpoint Source Program Contacts. Region 8 Nonpoint Source Program Contacts: ...

www.epa.gov/region8/water/nps/contacts.html - 24k - 2009-07-15

[Water Monitoring Contacts | Region 8 | US EPA](#)

... Yellowstone Park Foundation 222 East Main St., Suite 301 Bozeman MT 59715 cgianas@ypf.org Michael Connor Devils Lake Basin Joint **Water** Resource Board 524 ...

www.epa.gov/unix0008/water/monitoring/invcontacts.html - 17k - 2009-07-08

[NPDES Permitting Contacts - US EPA Region 8 | Region 8 | US EPA](#)

... You are here: EPA Home; Region 8; **Water**; npdes; NPDES Permitting Contacts - US EPA Region 8. ... Chief, **Water** Permits Unit 303-312-6117 E-mail: stavnes.sandra@epa.gov ...

www.epa.gov/unix0008/water/npdes/contact.html - 22k - 2009-07-08

[Region 8 home page | Region 8 | US EPA](#)

... On One-Year Anniversary, Recovery Act delivering Clean **Water**, Jobs to Colorado 2/17 -- EPA Recovery Act funding for wastewater and drinking **water** ...

www.epa.gov/region8/ - 25k - 2010-03-11

[Contact Us | Region 8 Drinking Water Online | US EPA](#)

... Contact Us. Region 8 Drinking **Water** Online. Serving Public **Water** Systems in Wyoming and on Tribal Lands. You are here: EPA Home; Region ...

www.epa.gov/unix0008/waterops/home/contactus.html - 18k - 2009-08-17

Filter by Metadata

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[Channel = About EPA](#)

[Content Type = Data & Tools](#)

[Keyword = form](#)

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
```

```
<!-- EPA Template version 4.0.0, 22 Dec 2008 -->
<head>
```

```
<title>Region 8 Nonpoint Source Program Contacts | Region 8 | US EPA</title>
```

```
<!-- Dc.description meta keyword -->
<meta name="DC.description" content="Today, polluted runoff from agriculture and urban runoff remains the nation's largest source of water quality
<meta name="keywords" content="nps," />
```

```
<!-- Dc.Title meta keyword -->
<meta name="DC.title" content="Region 8 Nonpoint Source Program Contacts | Region 8 | US EPA" />
```

```
<meta name="DC.Subject.epabrm" content="Manage Water Quality," />
```

```
<meta name="DC.type" content="Contact Information," />
```

```
<meta name="DC.Subject.epachannel" content="About EPA," />
```

```
<meta name="DC.Subject.epacat" content="" />
```

```
<meta name="DC.Subject.epaect" content="" />
```

```
<meta name="DC.Subject.epaemt" content="" />
```

```
<meta name="DC.Subject.epahealth" content="" />
```

```
<meta name="DC.Subject.eparegulation" content="" />
```

```
<meta name="DC.Subject.substance" content="" />
```

```
<meta name="DC.Subject.epaindustry" content="" />
```

```
<meta name="DC.audience" content="" />
```

```
<meta name="DC.coverage" content="" />
```

```
<meta name="DC.Subject.organization" content="US EPA, Region 8," />
```

```
<!-- DC.creator meta keyword -->
<meta name="DC.creator" content="US EPA, Region 8" />
```

```
<meta name="DC.language" content="en" />
```

```
<!-- DC.date.modified meta keyword -->
```

```
<!-- DC.date.created meta keyword -->
```

```
<meta name="DC.date.created" content="2007-06-28" />
```

```
<meta name="DC.date.modified" content="2009-07-14" />
```

```
<!-- DC.date.reviewed meta keyword -->
```

```
<meta name="DC.date.reviewed" content="2009-10-01" />
```

```
<!-- DC.date.archivedate meta keyword -->
```

```
<meta name="DC.date.archivedate" content="0000-00-00" />
```

```
<meta http-equiv="Content-style-Type" content="text/css" />
```

```
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
```

```
<link rel="schema.DC" href="http://purl.org/dc/elements/1.1/" />
```

```
<link type="application/rdf+xml" title="ICRA labels" rel="meta" href="http://www.epa.gov/labels.rdf" />
```

```
<!--BEGIN local-css--> <style media="screen" type="text/css">@import ''; </style> <!-- END local-css -->
```

```
<link type="text/css" rel="stylesheet" href="http://www.epa.gov/epafiles/css/epa-core.css" />
```

```
<!--[if IE 8]><link rel="stylesheet" type="text/css" href="http://www.epa.gov/epafiles/css/ie8.css"/><![endif]-->
```

```
<!--[if IE 7]><link rel="stylesheet" type="text/css" href="http://www.epa.gov/epafiles/css/ie7.css"/><![endif]-->
```

```
<!--[if lt IE 7]><link rel="stylesheet" type="text/css" href="http://www.epa.gov/epafiles/css/ie6.css"/><![endif]-->
```

[Advanced Search](#)

Results 1 - 10 of about 1220 for water. Search took 0.11 seconds

[Sort by date](#) / [Sort by relevance](#)

Filter by Metadata

Javascript must be enabled for narrowing.

[Channel = About EPA](#)

[Content Type = Data & Tools](#)

[Keyword = form](#)

Search

[Surface Water | Exposure Assessment Models | US EPA](#)

... **Water**. Surface **Water** Models. ... Service. SERAFM, MS-Excel 2003, serafm, exposure, assessment, mercury, hg, surface **water**, pond, stream, river, CEAM. ...

www.epa.gov/ceampubl/swater/ - 23k - 2009-08-24

[Water Quality Models | Ecosystems Research Division | US EPA](#)

... **Water** Quality Models. ... **Water** quality models simulate the fate of pollutants and the state of selected **water** quality variables in **water** bodies. ...

www.epa.gov/athens/wwqtsc/html/water_quality_models.html - 19k - 2010-04-02

[Watershed/Water Quality Technical Support Center WASP Page, US EPA ...](#)

... **Water** Quality Analysis Simulation Program (WASP). ... The **Water** Quality Analysis Simulation Program. ... Media. Surface **Water**. Pollutant Types. ...

www.epa.gov/athens/wwqtsc/html/wasp.html - 27k - 2010-04-02

[[More results from www.epa.gov/athens/wwqtsc/html](#)]

[WASP Page, US EPA | Ecosystems Research Division | US EPA](#)

... **Water** Quality Analysis Simulation Program (WASP). ... The body of **water** to be simulated must be divided into a series of computational elements or segments. ...

www.epa.gov/athens/research/modeling/wasp.html - 18k - 2010-03-30

[WhAEM2000 | Exposure Assessment Models | US EPA](#)

... WhAEM2000 is a public domain, ground-**water** flow model designed to facilitate capture zone delineation and protection area mapping in support of the State's ...

www.epa.gov/ceampubl/gwater/whaem/ - 19k - 2010-02-25

[Groundwater | Exposure Assessment Models | US EPA](#)

... 3DFEMWATER/3DLEWASTE, N/A, assessment, discharge, drinking **water**, environmental effects, groundwater, hydrology, metals, monitoring, pesticides, prevention, test ...

www.epa.gov/ceampubl/gwater/ - 17k - 2009-08-25

[Modeling Subsurface Petroleum Hydrocarbon Transport | Ecosystems ...](#)

... formulas,; models,; unit conversion factors and; scientific demonstrations.

to assess the impacts from ground **water** contaminants. For ...

www.epa.gov/athens/onsite/ - 17k - 2010-01-13

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- Contact Susan Fagan 202-566-2021 or email