

**Appendix I:
Summary Tables
of Questions
and
Indicators**

Chapter I: Cleaner Air – Questions and Indicators

Outdoor Air Quality

Question	Indicator Name	Category	Section
What is the quality of outdoor air in the United States? (See also following four questions)	Number and percentage of days that metropolitan statistical areas (MSAs) have Air Quality Index (AQI) values greater than 100	2	1.1.1
– How many people are living in areas with particulate matter and ozone levels above the National Ambient Air Quality Standards (NAAQS)?	Number of people living in areas with air quality levels above the NAAQS for particulate matter (PM) and ozone	1	1.1.1.a
– What are the concentrations of some criteria air pollutants: PM _{2.5} , PM ₁₀ , ozone, and lead?	Ambient concentrations of particulate matter: PM _{2.5} and PM ₁₀	1	1.1.1.b
	Ambient concentrations of ozone: 8-hour and 1-hour	1	1.1.1.b
	Ambient concentrations of lead	1	1.1.1.b
– What are the impacts of air pollution on visibility in national parks and other protected lands?	Visibility	1	1.1.1.c
– What are the concentrations of toxic air pollutants in ambient air?	Ambient concentrations of selected air toxics	2	1.1.1.d
What contributes to outdoor air pollution? (See also following three questions)	See emissions indicators		1.1.2
– What are contributors to particulate matter, ozone, and lead in ambient air?	Emissions: particulate matter (PM _{2.5} and PM ₁₀) sulfur dioxide, nitrogen oxides, and volatile organic compounds	2	1.1.2.a
	Lead emissions	2	1.1.2.a
– What are contributors to toxic air pollutants in ambient air?	Air toxics emissions	2	1.1.2.b
– To what extent is U.S. air quality the result of pollution from other countries, and to what extent does U.S. air pollution affect other countries?	No Category 1 or 2 indicators identified		1.1.2.c
What human health effects are associated with outdoor air pollution?	No Category 1 or 2 indicators identified Also see Human Health chapter		1.1.3
What ecological effects are associated with outdoor air pollution?	No Category 1 or 2 indicators identified Also see Ecological Condition chapter		1.1.4

Acid Deposition

Question	Indicator Name	Category	Section
What are the deposition rates of pollutants that cause acid rain?	Deposition: wet sulfate and wet nitrogen	2	1.2.1
What are the emissions of pollutants that form acid rain?	Emissions (utility): sulfur dioxide and nitrogen oxides	2	1.2.2
What ecological effects are associated with acid deposition?	No Category 1 or 2 indicators identified Also see Ecological Condition chapter		1.2.3

Chapter I: Cleaner Air – Questions and Indicators (continued)

Indoor Air Quality

Question	Indicator Name	Category	Section
What is the quality of the air in buildings in the United States?	U.S. homes above EPA's radon action levels	2	1.3.1
	Percentage of homes where young children are exposed to environmental tobacco smoke	2	1.3.1
What contributes to indoor air pollution?	No Category 1 or 2 indicators identified Also see Human Health chapter		1.3.2
What human health effects are associated with indoor air pollution?	No Category 1 or 2 indicators identified Also see Human Health chapter		1.3.3

Stratospheric Ozone

Question	Indicator Name	Category	Section
What are the trends in the Earth's ozone layer?	Ozone levels over North America	1	1.4.1
What is causing changes to the ozone layer?	Worldwide and U.S. production of ozone-depleting substances (ODSs)	2	1.4.2
	Concentrations of ozone-depleting substances (effective equivalent chlorine)	2	1.4.2
What human health effects are associated with stratospheric ozone depletion?	No Category 1 or 2 indicators identified		1.4.3
What ecological effects are associated with stratospheric ozone depletion?	No Category 1 or 2 indicators identified		1.4.4

Chapter 2: Purer Water - Questions and Indicators Waters and Watersheds

Question	Indicator Name	Category	Section
What is the condition of fresh surface waters and watersheds in the U.S.?	Altered fresh water ecosystems	2	2.2.1
	Lake Trophic State Index	2	2.2.1
What are the extent and condition of wetlands?	Wetland extent and change	1	2.2.2
	Sources of wetland change/loss	2	2.2.2
What is the condition of coastal waters?	Water clarity in coastal waters	2	2.2.3
	Dissolved oxygen in coastal waters	2	2.2.3
	Total organic carbon in sediments	2	2.2.3
	Chlorophyll concentrations	2	2.2.3
What are pressures to water quality?	General pressures		
	Percent urban land cover in riparian areas	2	2.2.4.a
	Agricultural lands in riparian areas	2	2.2.4.a
	Population density in coastal areas	2	2.2.4.a
	Changing stream flows	1	2.2.4.a
	Number/duration of dry stream flow periods in grassland/shrublands	2	2.2.4.a
	Sedimentation index	2	2.2.4.a
	Nutrient pressures		
	Atmospheric deposition of nitrogen	2	2.2.4.b
	Nitrate in farmland, forested, and urban streams and ground water	2	2.2.4.b
	Total nitrogen in coastal waters	2	2.2.4.b
	Phosphorus in farmland, forested, and urban streams	2	2.2.4.b
	Phosphorus in large rivers	2	2.2.4.b
	Total phosphorus in coastal waters	2	2.2.4.b
	Chemical Pressures		
	Atmospheric deposition of mercury	2	2.2.4.c
	Chemical contamination in streams and ground water	2	2.2.4.c
	Pesticides in farmland streams and ground water	2	2.2.4.c
	Acid sensitivity in lakes and streams	2	2.2.4.c
	Toxic releases to water of mercury, dioxin, lead, PCBs, and PBTs	2	2.2.4.c
Sediment contamination of inland waters	2	2.2.4.c	
Sediment contamination of coastal waters	2	2.2.4.c	
Sediment toxicity in estuaries	2	2.2.4.c	
What ecological effects are associated with impaired waters?	Fish Index of Biotic Integrity in streams Also see Ecological Condition chapter	2	2.2.5
	Macroinvertebrate Biotic Integrity index for streams Also see Ecological Condition chapter	2	2.2.5
	Benthic Community Index for coastal waters Also see Ecological Condition chapter	2	2.2.5

Chapter 2: Purer Water - Questions and Indicators (continued)

Drinking Water

Question	Indicator Name	Category	Section
What is the quality of drinking water?	Population served by community water systems that meets all health-based standards	1	2.3.1
What are sources of drinking water contamination?	No Category 1 or 2 indicators identified		2.3.2
What human health effects are associated with drinking contaminated water?	No Category 1 or 2 indicators identified Also see Human Health chapter		2.3.3

Recreation in and on the Water

Question	Indicator Name	Category	Section
What is the condition of waters supporting recreational use?	Number of beach days that beaches are closed or under advisory	2	2.4.1
What are sources of recreational water pollution?	No Category 1 or 2 indicators identified		2.4.2
What human health effects are associated with recreation in contaminated waters?	No Category 1 or 2 indicators identified Also see Human Health chapter		2.4.3

Consumption of Fish and Shellfish

Question	Indicator Name	Category	Section
What is the condition of waters that support consumption of fish and shellfish?	Percent of river miles and lake acres under fish consumption advisories	2	2.5.1
	Contaminants in fresh water fish	2	2.5.1
	Number of watersheds exceeding health-based national water quality criteria for mercury and PCBs in fish tissue	2	2.5.1
What are contaminants in fish and shellfish, and where do they originate?	No Category 1 or 2 indicators identified		2.5.2
What human health effects are associated with consuming contaminated fish and shellfish?	No Category 1 or 2 indicators identified Also see Human Health chapter		2.5.3

Chapter 3: Better Protected Land – Questions and Indicators

Land Use

Question	Indicator Name	Category	Section
What is the extent of developed lands?	Extent of developed lands	1	3.1.1
	Extent of urban and suburban lands	2	3.1.1
What is the extent of farmlands?	Extent of agricultural land uses	1	3.1.2
	The farmland landscape	2	3.1.2
What is the extent of grasslands and shrublands?	Extent of grasslands and shrublands	2	3.1.3
What is the extent of forest lands?	Extent of forest area, ownership, and management	1	3.1.4
What human health effects are associated with land use?	No Category 1 or 2 indicator identified		3.1.5
What ecological effects are associated with land use?	Sediment runoff potential from croplands and pasturelands	2	3.1.6

Chemicals in the Landscape

Question	Indicator Name	Category	Section
How much and what types of toxic substances are released into the environment?	Quantity and type of toxic chemicals released and managed	2	3.2.1
What is the volume, distribution, and extent of pesticide use?	Agricultural pesticide use	2	3.2.2
What is the volume, distribution, and extent of fertilizer use?	Fertilizer use	2	3.2.3
What is the potential disposition of chemicals from land?	Pesticide residues in food	1	3.2.4
	Potential pesticide runoff from farm fields	1	3.2.4
	Risk of nitrogen export	2	3.2.4
	Risk of phosphorus export	2	3.2.4
What human health effects are associated with pesticides, fertilizers, and toxic substances?	No Category 1 or 2 indicator identified		3.2.5
What ecological effects are associated with pesticides, fertilizers, and toxic substances?	No Category 1 or 2 indicator identified		3.2.6

Chapter 3: Better Protected Land – Questions and Indicators (continued)

Waste and Contaminated Lands

Question	Indicator Name	Category	Section
How much and what types of waste are generated and managed ?	Quantity of municipal solid waste (MSW) generated and managed	2	3.3.1
	Quantity of RCRA hazardous waste generated and managed	2	3.3.1
	Quantity of radioactive waste generated and in inventory	2	3.3.1
What is the extent of land used for waste management?	Number and location of municipal solid waste (MSW) landfills	2	3.3.2
	Number and location of RCRA hazardous waste management facilities	2	3.3.2
What is the extent of contaminated lands?	Number and location of Superfund National Priorities List (NPL) sites	2	3.3.3
	Number and location of RCRA Corrective Action sites	2	3.3.3
What human health effects are associated with waste management and contaminated lands?	No Category 1 or 2 indicator identified		3.3.4
What ecological effects are associated with waste management and contaminated lands?	No Category 1 or 2 indicator identified		3.3.5

Chapter 4: Human Health - Questions and Indicators

Health Status of the U.S. : Indicators and Trends of Health and Disease

Question	Indicator Name	Category	Section
What are the trends for life expectancy?	Life expectancy	1	4.3.1
What are the trends for cancer, cardiovascular disease, chronic obstructive pulmonary disease and asthma?	Cancer mortality	1	4.3.2
	Cancer incidence	2	4.3.2
	Cardiovascular disease mortality	1	4.3.2
	Cardiovascular disease prevalence	1	4.3.2
	Chronic obstructive pulmonary disease mortality	1	4.3.2
	Asthma mortality	1	4.3.2
	Asthma prevalence	1	4.3.2
What are the trends for gastrointestinal illness?	Cholera prevalence	2	4.3.3
	Cryptosporidiosis prevalence	2	4.3.3
	<i>E. coli</i> O157:H7 prevalence	2	4.3.3
	Hepatitis A prevalence	2	4.3.3
	Salmonellosis prevalence	2	4.3.3
	Shigellosis prevalence	2	4.3.3
	Typhoid fever prevalence	2	4.3.3
What are the trends for children's environmental health issues?	Infant mortality	1	4.3.4
	Low birthweight incidence	1	4.3.4
	Childhood cancer mortality	1	4.3.4
	Childhood cancer incidence	2	4.3.4
	Childhood asthma mortality	1	4.3.4
	Childhood asthma prevalence	1	4.3.4
	Deaths due to birth defects	1	4.3.4
	Birth defect incidence	1	4.3.4

Measuring Exposure to Environmental Pollution: Indicators and Trends

Question	Indicator Name	Category	Section
What is the level of exposure to heavy metals?	Blood lead level	1	4.4.3
	Urine arsenic level	2	4.4.3
	Blood mercury level	1	4.4.3
	Blood cadmium level	1	4.4.3
What is the level of exposure to cotinine?	Blood cotinine level	1	4.4.4
What is the level of exposure to volatile organic compounds?	Blood volatile organic compound levels	1	4.4.5
What is the level of exposure to pesticides?	Urine organophosphate levels to indicate pesticides	1	4.4.6
What is the level of exposure to persistent organic pollutants?	No Category 1 or 2 indicators identified		4.4.7
What are the trends in exposure to environmental pollutants for children?	Blood lead level in children	1	4.4.8
	Blood mercury level in children	1	4.4.8
	Blood cotinine level in children	1	4.4.8
What is the level of exposure to radiation?	No Category 1 or 2 indicators identified		4.4.9
What is the level of exposure to air pollutants?	No Category 1 or 2 indicators identified Also see Cleaner Air chapter		4.4.9
What is the level of exposure to biological pollutants?	No Category 1 or 2 indicators identified		4.4.9
What is the level of exposure to disinfection by-products?	No Category 1 or 2 indicators identified		4.4.9

Chapter 5: Ecological Condition - Questions and Indicators

Forests

Question	Indicator Name	Category	Section
What is the ecological condition of forests?	<i>Extent of forest area, ownership, and management</i>	1	3.1.4
	<i>Nitrate in farmland, forested, and urban streams and ground water</i>	2	2.2.4.b
	<i>Deposition: wet sulfate and wet nitrogen</i>	2	1.2.2
	<i>Changing stream flows</i>	1	2.2.4.a
	Extent of area by forest type	1	5.2
	Forest age class	2	5.2
	Forest pattern and fragmentation	2	5.2
	At-risk native forest species	2	5.2
	Populations of representative forest species	2	5.2
	Forest disturbance: fire, insects, and disease	1	5.2
	Tree condition	2	5.2
	Ozone injury to trees	2	5.2
	Carbon storage	2	5.2
	Soil compaction	2	5.2
	Soil erosion	2	5.2
Processes beyond the range of historic variation	2	5.2	

Farmlands

Question	Indicator Name	Category	Section
What is the ecological condition of farmlands?	<i>Extent of agricultural land uses</i>	1	3.1.2
	<i>The farmland landscape</i>	1	3.1.2
	<i>Nitrate in farmland, forested, and urban streams and ground water</i>	2	2.2.4.b
	<i>Phosphorus in farmland, forested and urban streams</i>	2	2.2.4.b
	<i>Pesticides in farmland streams and ground water</i>	2	2.2.4.c
	<i>Potential pesticide runoff from farm fields</i>	2	3.2.4
	<i>Sediment runoff potential from croplands and pasturelands</i>	2	3.1.6
	Pesticide leaching potential	2	5.3
	Soil quality index	2	5.3
	Soil erosion	2	5.3

Grasslands and Shrublands

Question	Indicator Name	Category	Section
What is the ecological condition of grasslands and shrublands?	<i>Extent of grasslands and shrublands</i>	1	3.1.3
	<i>Number/duration of dry stream flow periods in grasslands and shrublands</i>	2	2.2.4.a
	At-risk native grassland and shrubland species	2	5.4
	Population trends of invasive and native non-invasive bird species	1	5.4

Note: *Italicized indicators are presented in other chapters.*

Chapter 5: Ecological Condition - Questions and Indicators (continued)

Urban and Suburban Lands

Question	Indicator Name	Category	Section
What is the ecological condition of urban and suburban areas?	<i>Extent of urban and suburban lands</i>	1	3.1.1
	<i>Ambient concentrations of ozone: 8-hour and 1-hour</i>	2	1.1.1.b
	<i>Nitrate in farmland, forested and urban streams, and ground water</i>	2	2.2.4.b
	<i>Phosphorus in farmland, forested, and urban streams</i>	2	2.2.4.b
	<i>Chemical contamination in urban streams and ground water</i>	2	2.2.4.c
	Patches of forest, grassland, shrubland, and wetland in urban/suburban areas	2	5.5

Fresh Waters

Question	Indicator Name	Category	Section
What is the ecological condition of fresh waters?	<i>Wetland extent and change</i>	1	2.2.2
	<i>Altered fresh water ecosystems</i>	2	2.2.1
	<i>Contaminants in fresh water fish</i>	2	2.5.1
	<i>Phosphorus in large rivers</i>	2	2.2.4.b
	<i>Lake Trophic State Index</i>	2	2.2.1
	<i>Chemical contamination in streams and ground water</i>	2	2.2.4.c
	<i>Acid sensitivity in lakes and streams</i>	2	2.2.4.c
	<i>Changing stream flows</i>	1	2.2.4.a
	<i>Sedimentation index</i>	2	2.2.4.a
	Extent of ponds, lakes, and reservoirs	1	5.6
	At-risk native fresh water species	2	5.6
	Non-native fresh water species	2	5.6
	Animal deaths and deformities	2	5.6
	At-risk fresh water plant communities	2	5.6
	Fish Index of Biotic Integrity in streams	2	5.6
Macroinvertebrate Biotic Integrity Index for streams	2	5.6	

Coasts and Oceans

Question	Indicator Name	Category	Section
What is the ecological condition of coasts and oceans?	<i>Chlorophyll concentrations</i>	2	2.2.3
	<i>Water clarity in coastal waters</i>	2	2.2.3
	<i>Total nitrogen in coastal waters</i>	2	2.2.4.b
	<i>Total phosphorus in coastal waters</i>	2	2.2.4.b
	<i>Dissolved oxygen in coastal waters</i>	2	2.2.3
	<i>Total organic carbon in sediments</i>	2	2.2.3
	<i>Sediment contamination of coastal waters</i>	2	2.2.4.c
	<i>Sediment toxicity in estuaries</i>	2	2.2.4.c
	Extent of estuaries and coastlines	1	5.7
	Coastal living habitats	2	5.7
	Shoreline types	2	5.7
	Benthic Community Index	2	5.7
	Fish diversity	2	5.7
	Submerged aquatic vegetation	2	5.7
	Fish abnormalities	2	5.7
	Unusual marine mortalities	2	5.7

Note: *Italicized indicators are presented in other chapters.*

Chapter 5: Ecological Condition - Questions and Indicators (continued)

The Entire Nation

Question	Indicator Name	Category	Section
What is the ecological condition of the entire nation?	Ecosystem extent	2	5.8
	At-risk native species	2	5.8
	Bird Community Index	2	5.8
	Terrestrial Plant Growth Index	1	5.8
	Movement of nitrogen	1	5.8
	Chemical contamination	2	5.8

Note: Italicized indicators are presented in other chapters.

