

Scientific Literacy And Environmental Policy The Missing Prerequisite For Sound Decision Making

Socioscientific issues require individuals to use moral and ethical considerations to help in their evaluation of evidence and decision making, entailing controversial scientific phenomena. Such issues include genetic engineering and biotechnology. Socioscientific issues pedagogy has the potential to enhance students' overall conceptual understanding of scientific phenomena that affect the daily lives of people across the globe. Socioscientific Issues-Based Instruction for Scientific Literacy Development is a critical scholarly publication that examines the development of a research-based integrated socioscientific issues pedagogy for use in the K-12 system, teacher education preparation, and informal education centers. The publication focuses on science education researchers and pre-service and in-service teachers' abilities to design and implement meaningful learning opportunities for students to use rationalistic, intuitive, and emotive perspectives as they engage in information reasoning on scientific topics, such as climate change and CRISPR, that are of utmost importance. Teachers in the K-12 system and informal education settings will be able to use this text to enhance scientific literacy among their students. Instructors in teacher preparation programs will be able to use this research-based text to improve pre-service and in-service teachers' abilities to use socioscientific issues pedagogy to enhance scientific literacy among K-12 students. Additionally, audiences including researchers, administrators, academicians, policymakers, and students will find this book beneficial for their studies.

Pressing environmental challenges are frequently surrounded with stakeholders on all sides of the issues. Opinions expressed by government agencies, the private sector, special interests, nonprofit communities, and the media, among others can quickly cloud the dialogue, leaving one to wonder how policy decisions actually come about. In Environmental Policy Analysis and Practice, Michael R. Greenberg cuts through the complicated layers of bureaucracy, science, and the public interest to show how all policy considerations can be broken down according to six specific factors: 1) the reaction of elected government officials, 2) the reactions of the public and special interests, 3) knowledge developed by scientists and engineers, 4) economics, 5) ethical imperatives, and 6) time pressure to make a decision. The book is organized into two parts, with the first part defining and illustrating each one of these criteria. Greenberg draws on examples such as nuclear power, pesticides, brownfield redevelopment, gasoline additives, and environmental cancer, but focuses on how these subjects can be analyzed rather than exclusively on the issues themselves. Part two goes on to describe a set of over twenty tools that are used widely in policy analysis, including risk assessment, environmental impact analysis, public opinion surveys, cost-benefit analysis, and others. These tools are described and then illustrated with examples from part one. Weaving together an impressive combination of practical advice and engaging first person accounts from government officials, administrators, and leaders in the fields of public health and medicine, this clearly written volume is poised to become a leading text in environmental policy.

Covering global threats such as climate change, population growth, and loss of biodiversity, as well as national, state, and local problems of environmental pollution, energy use, and natural resource use and conservation, Environmental Policy and Politics provides a comprehensive overview of U.S. policy-making processes, the legislative and administrative settings for policy decisions, the role of interest groups and public opinion in environmental politics, and the public policies that result. It helps readers understand modern environmental policy and its implications, including the need for a comprehensive and integrated approach to problem solving.

The authors propose the science curriculum concept of Global Science Literacy justifying its use internationally with reference to the nature of science, the probable direction of science in the new millennium, the capability for GSL to develop inter-cultural understanding, and its relevance to non-Western cultures and traditions. It is relevant to curriculum developers, researchers, teachers and graduate students.

Emerging Topics in Coastal and Transitional Ecosystems: Science, Literacy, and Innovation

Interest Groups, the Media, and the Making of Policy

Rethinking Scientific Literacy

Environmental Stewardship

A Primer for Environmental Literacy

Fake News Nation

The IBSS is the essential tool for librarians, university departments, research institutions and any public or private institution whose work requires access to up-to-date and comprehensive knowledge of the social sciences.

Framed by New England's 1938 Hurricane and advanced through flashbacks, voices of the land, and historical lore, this is the story of MacFarland, a Scots Highlander whose identity is altered by forced exiles. His story emerges in seventeenth-century Connecticut, the era of the Pequot War between Pequots and English colonists in league with Mohegans. Like MacFarland, Sassacus and Uncas, the Pequot and Mohegan sachems, become "identities in exile." MacFarland is driven from Scotland to Guildford, southwest of London. Shortly after meeting the Puritan Roger Williams, MacFarland emigrates to Massachusetts Bay Colony, then to the Connecticut shoreline, where he befriends a Quinnipiac family and later the two sachems, as well as the commander of Fort Saybrook. Through the Pequot War, MacFarland is forced to decide where his loyalties reside. Ultimately, he finds himself estranged anew and embarks on a "journey-quest" northward along the Connecticut River and disappears, lost in this final exile. As inspired by psychologist Erik Erikson's notion of a lifelong series of "identity crises," MacFarland must assume new identities as he endures his exiles. His exiles reflect our search for our own place between "civilization" and "wilderness" - and beyond.

Published to glowing praise in 1990, Science for All Americans defined the science-literate American--describing the knowledge, skills, and attitudes all students should retain from their learning experience--and offered a series of recommendations for reforming our system of education in science, mathematics, and technology. Benchmarks for Science Literacy takes this one step further. Created in close consultation with a cross-section of American teachers, administrators, and scientists, Benchmarks elaborates on the recommendations to provide guidelines for what all students should know and be able to do in science, mathematics, and technology by the end of grades 2, 5, 8, and 12. These grade levels offer reasonable checkpoints for student progress toward science literacy, but do not suggest a rigid formula for teaching. Benchmarks is not a proposed curriculum, nor is

it a plan for one: it is a tool educators can use as they design curricula that fit their student's needs and meet the goals first outlined in Science for All Americans. Far from pressing for a single educational program, Project 2061 advocates a reform strategy that will lead to more curriculum diversity than is common today. IBenchmarks emerged from the work of six diverse school-district teams who were asked to rethink the K-12 curriculum and outline alternative ways of achieving science literacy for all students. These teams based their work on published research and the continuing advice of prominent educators, as well as their own teaching experience. Focusing on the understanding and interconnection of key concepts rather than rote memorization of terms and isolated facts, Benchmarks advocates building a lasting understanding of science and related fields. In a culture increasingly pervaded by science, mathematics, and technology, science literacy require habits of mind that will enable citizens to understand the world around them, make some sense of new technologies as they emerge and grow, and deal sensibly with problems that involve evidence, numbers, patterns, logical arguments, and technology--as well as the relationship of these disciplines to the arts, humanities, and vocational sciences--making science literacy relevant to all students, regardless of their career paths. If Americans are to participate in a world shaped by modern science and mathematics, a world where technological know-how will offer the keys to economic and political stability in the twenty-first century, education in these areas must become one of the nation's highest priorities. Together with Science for All Americans, Benchmarks for Science Literacy offers a bold new agenda for the future of science education in this country, one that is certain to prepare our children for life in the twenty-first century. The PISA 2006 Technical Report describes the methodology underlying the PISA 2006 survey. It examines features related to the implementation of the project at a level of detail that allows researchers to replicate its analyses.

Scientific Literacy and Environmental Policy

Citizens Science and Environmental Monitoring

Concepts, Contexts, and Consequences

Global Science Literacy

A Guide for Legislation and School Policy in Science Education

Political Science, 1993

This is a study of the association between scientific literacy and individual opinions on military spending of voting-age Americans using data from the 2016 General Social Survey. Based on responses to general science knowledge questions, I created a scientific knowledge test. Individuals were coded as scientifically literate if they answered 10 questions correctly out of the 12 on this test. Using multinomial logistic regression models, I found those exhibiting scientific literacy were 1.88 times more likely to express the opinion that military spending is too high, as compared to individuals classified as not scientifically literate. My results were robust to changes in the passing threshold for the test. Given the growing role of science and technology in the military, further study of this issue may have considerable implications for the education, scientific, and government communities. The findings could be applied to arguments related to the establishment of voter qualifications, changes in funding to science education, or how government agencies convey their spending habits to the public. This compilation includes a reproduction of the 2019 Worldwide Threat Assessment of the U.S. Intelligence Community. The implications of this connection between scientific literacy and opinions and voting habits could have significant impacts across government, education, and scientific fields. The results could be applied to arguments for or against the establishment of voter qualifications, changes in funding to science education, or how government agencies convey their spending habits to the public. The concept of scientific literacy dates back to the 1950s with the advent of nuclear power, and the growing concern for environmental protection. With these public concerns, voters were faced with forming opinions and making decisions that required some level of scientific understanding. As stated by researcher Jon Miller, "in a democratic society the level of scientific literacy in the population has important implications for science policy decisions". In the 1960s, voters were often asked to vote on laws and regulations involving scientific concepts, such as nuclear power. As more science-based issues appeared on state referenda, there was "apprehension in the scientific community about the public's ability to understand the issues and to make an informed judgement." Miller concluded that "the level of scientific literacy in the United States is deplorably low" and corrective actions "will improve the quality of both our science and technology and our political life."

This student-friendly textbook offers a comprehensive introduction to globalization studies and the European Union within a multipolar world. It provides its readers with critical analysis of the key concepts of multilateral global and regional governance and Europe's role in the world; and this in an accessible and intelligible fashion. This volume collects contributions by eminent scholars from world class universities from five different continents. As such, this unique exercise in transnational multi-disciplinary cooperation, provides extensive coverage of the main issues pertaining to multilateral cooperation - notably its history, troubles, legitimacy challenges and efficiency questions - from a variety of national perspectives.

This text presents the key concepts of environmental science for those who are not natural scientists. It offers a way to improve environmental literacy - the capacity to understand the connections between humans and their environment. There are reading lists for each topic covered.

Over the last few decades, the new discipline of sustainability science (SS) has evolved with a phenomenal rise in knowledge production, research, and publications, as well as the development of new academic programs and creation of centers and scientific communities, networks, and organizations. With pressing global environmental issues in the 21st century, SS has become an influential discipline and important subject of intellectual inquiry that deserves support from the academy and scientific communities worldwide to find solutions to global problems such as climate change, environmental degradation, and biodiversity loss. Intellectual, Scientific, and Educational Influences on Sustainability Research is a concise and authoritative book that fills the crucial and unmet need for educational materials that integrates theoretical foundations, methodological basis, and practice in the science of sustainability. The goal of the book is to increase accessibility and use of educational and scientific knowledge among academic and non-academic audiences as it assembles the wisdom and insights from up-to-date scholarship and advances in this new discipline. Highlighting various topics such as biodiversity, public transportation, and human development, it is ideal for environmentalists, ecologists, technology developers, policymakers, academicians, researchers, and students.

PISA 2006 Technical Report

International Bibliography of the Social Sciences

Ecosystem Services in Environmental Science Literacy

Environmental Policy

Images from Popular Culture

The New York Times Book of Science Literacy: The environment from your backyard to the ocean floor

A comprehensive review and analysis of environmental literacy within the context of environmental science and sustainable development. Approaching the topic from multiple perspectives, the book explores the development of human understanding of the environment and human-environment interactions in the fields of biology, psychology, sociology, economics and industrial ecology. This exciting new volume demonstrates how environmental rhetoric and technical communication go hand and hand.

Today's answers to our most urgent climate issues The twenty-first century ushered in a set of unmistakably urgent global challenges that are too important to be an afterthought in today's classrooms. Climate Smart & Energy Wise offers a virtual blueprint to climate and energy education, packed with resources and strategies, including: A high-level overview of where climate and energy topics fit (or don't fit) into your current curriculum with connections to the NGSS Proven methods to teach climate change and related topics in a grade-appropriate way Sample learning activities and high-quality online resources

For more than twenty years, Environmental Policy and Politics has kept instructors and students abreast of the challenges presented by contemporary environmental, energy, and natural resource problems in the United States. Now in its eighth edition, Michael E. Kraft has updated his definitive text to capture the changing nature of environmental problems as well as policy proposals made through 2020. Drawing from work within environmental science, policy analysis, and political science, this text continues to help readers think critically about how best to address problems through a variety of public policy tools and strategies at all levels of government. Important updates to this new edition include: • The latest information about environmental challenges and governmental responses to them, with extensive citation of key sources and websites. • Key political and policy decisions through late 2020, including presidential appointments, budgetary decisions, major legislative initiatives, and congressional actions. • New learning objectives to facilitate student understanding of key concepts and their applications, arguments advanced over environmental challenges and policies, and the goals and methods of environmental policy analysis. • Coverage of new topics that have emerged during the Trump presidency, including the Clean Power Plan repeal and reduction of environmental regulation, climate change, land conservation, changes in natural resources policies, and a comparison of the Republican and Democratic positions on climate change in 2020. • Updated summaries of scientific studies, government reports, and policy analyses. • Revised discussion questions and new suggested readings. Environmental Policy and Politics is an essential resource for upper level undergraduate and graduate students in political science and environmental studies looking for an accessible, well-researched, and up-to-date text, written with style and flair.

Environmental Politics

Environmental Policy and Politics

Why Scientific Literacy Matters

New Directions for the Twenty-First Century

Scientific Literacy and the Myth of the Scientific Method

Ecology for Environmental Professionals

The lesson of interconnectedness has yet to be fully absorbed in environmental policy, which lacks integration of ecological principles. Ecology is an indispensable thread in the cultural tapestry into which environmental policy and law are being woven. Extending beyond the four dimensions of space and time, ecological sciences are expressed from holistic and reductionist vantages, informing environmental professionals at levels as diverse as ecosystems experimentation and empirical human ecology. This volume renders ecology accessible to anyone lacking scientific preparation who would take an environmental stance: professional, political, legal, or personal.

Effective stewardship will require personal commitment to new-found environmental ethics that will come from a blend of scientific and spiritual traditions.

Today's youth will face global environmental changes, as well as complex personal and social challenges. To address these issues this collection of essays provides vital insights on how science education can be designed to better engage students and help them solve important problems in the world around them. Assessing Schools for Generation R (Responsibility) includes theories, research, and practices for envisioning how science and environmental education can promote personal, social, and civic responsibility. It brings together inspiring stories, creative practices, and theoretical work to make the case that science education can be reformed so that students learn to meaningfully apply the concepts they learn in science classes across America and grow into civically engaged citizens. The book calls for a curriculum that equips students with the knowledge, skills, attitudes and values to confront the complex and often ill-defined socioscientific issues of daily life. The authors are all experienced educators and top experts in the fields of science and environmental education, ecology, experiential education, educational philosophy, policy and history. They examine what has to happen in the domains of teacher preparation and public education to effect a transition of the youth of America. This exciting, informative, sophisticated and sometimes provocative book will stimulate much debate about the future direction of science education in America, and the rest of the world. It is ideal reading for all school superintendents, deans, faculty, and policymakers looking for a way to implement a curriculum that helps builds students into responsible and engaged citizens.

On the 21st and 22nd of November 2018, a two days' workshop was co-organized, by the JRC and the Working Group 3 "Improving Society-Science Policy Interface" of the COST Action 15212 "Citizen Science to promote creativity, scientific literacy, and innovation throughout Europe". The workshop took place at the JRCs premises in Ispra, Italy. This event represented an excellent and timely opportunity to host stakeholders groups from policy bodies, scientific communities and representatives from a number of Citizens' Science associations, and to discuss and elaborate on the opportunities and challenges brought forward by the increasing need and use of Citizen Science (CS) approaches in support to policy making. The ultimate goal of the workshop was to provide recommendations, stemming from all stakeholders, namely from the scientific, policy and citizens perspectives, on the way forward for improving developments, promoting and

accelerating the use of Citizens Science for (environment-related) policy making throughout Europe. The workshop acted also as a springboard for presenting the outline and intermediate findings of a recent study commissioned by DG Environment ("Study on an inventory of citizen science activities for environmental policies") and a very first draft of the guidelines for CS in support to environmental reporting, which is currently under development as part of the Actions to Streamline Environmental Reporting (COM(2017) 312). These very first draft documents provided useful material for discussion, especially in view of developing the above mentioned guidelines. The approximately 45 participants from a number of COST Countries, European Commission (EC) Services, and international Organizations active in the environmental and CS domains (such as the European Citizen Science Association - ECSA), confirmed that growing interest in an increased knowledge exchange amongst diverse stakeholders and CS initiatives, and the need for the development for a robust, while flexible, reference architecture for the development of guidelines for environmental monitoring and reporting, calling upon the benefits offered by CS approaches. The outputs from these two days joint effort and collaborative work are a collection of presentations about activities and best practices in the environmental domain, and precious expert feedback and recommendations on a number of issues deemed to be of priority for discussion both, in terms potentialities and challenges encountered by CS approaches applied to policy making at EU and at Member State level. As a further concrete outcome, the event offered a number of valuable expert contributions from the three main stakeholder representatives, on the very first draft guidelines on CS for environmental monitoring, and the related draft roadmap.

From Knowledge to Decisions

International Regulation of Underwater Sound

Science Literacy

The Long History of Lies and Misinterpretations in America

Technical Communication, Deliberative Rhetoric, and Environmental Discourse

Intellectual, Scientific, and Educational Influences on Sustainability Research

Today's undergraduate students--future leaders, policymakers, teachers, and citizens, as well as scientists and engineers--will need to make important decisions based on their understanding of scientific and technological concepts. However, many undergraduates in the United States do not study science, mathematics, engineering, or technology (SME&T) for more than one year, if at all. Additionally, many of the SME&T courses that students take are focused on one discipline and often do not give students an understanding about how disciplines are interconnected or relevant to students' lives and society. To address these issues, the National Research Council convened a series of symposia and forums of representatives from SME&T educational and industrial communities. Those discussions contributed to this book, which provides six vision statements and recommendations for how to improve SME&T education for all undergraduates. The book addresses pre-college preparation for students in SME&T and the joint roles and responsibilities of faculty and administrators in arts and sciences and in schools of education to better educate teachers of K-12 mathematics, science, and technology. It suggests how colleges can improve and evaluate lower-division undergraduate courses for all students, strengthen institutional infrastructures to encourage quality teaching, and better prepare graduate students who will become future SME&T faculty.

No one can argue against wanting a better quality of life—and Principles of Sustainable Living: A New Vision for Health, Happiness, and Prosperity provides keen insight into how to achieve that so that individuals, communities, and the environment all come out winners. This transdisciplinary text presents principles of sustainability, develops environmental literacy, and expands awareness of sustainable practices that will steer readers toward a lifestyle that they, as well as the entire planet, will benefit from. Author Richard Jurin, an expert in sustainable living, has written numerous publications on sustainable development, business leadership for sustainability, and related issues. He takes students beyond sustainability's traditional "triple bottom line" of people, profit, and planet to a quadruple paradigm that includes economic, sociocultural, psychological, and ecological aspects of sustainability. This text is supported by its own website, which includes an instructor guide, test package, study guide, and presentation package. The book's 36 illustrations and tables are all included in the presentation package. The text offers • principles of sustainability that support a range of university courses in multiple disciplines; • a systems approach to sustainability that reflects worldwide views and values; • case studies, personal reflections, and applications that help students understand their status and the challenges of the future; and • guidelines for developing sustainable living through daily choices. The book explores the mind-sets that have created the modern, consumer-based world we live in, exposing environmental and societal global problems as it does; lays out new ways of thinking, championing sustainable thinking as a prerequisite for living a healthy, happy, vibrant life that benefits the planet; and details positive options for living a sustainable lifestyle. Readers will be able to understand sustainability from a broad perspective—how it can improve their lives, resolve environmental problems, and improve the condition of the planet for all life. Principles of Sustainable Living

points out the problems and challenges we face individually and as caretakers of our planet and offers lifestyle approaches that can sustain quality of life long into the future.

An introduction to key environmental issues offers explanations of such topics as biodiversity, the greenhouse effect, and ecosystems in danger

Fake News Nation tells the story of how false information has flooded American public life for over 230 years. The authors show how lies, misrepresentations, and rumors have drawn America into wars, covered up assassinations, influenced national elections, and impacted contentious policy issues such as the effects of smoking and climate change.

Changing and Innovative Strategies for Environmental Protection

Transforming Undergraduate Education in Science, Mathematics, Engineering, and Technology

The Missing Prerequisite for Sound Decision Making

Environmental Policy Analysis and Practice

Towards a Better Global Governance?

Establishing Rules and Standards to Address Ocean Noise Pollution

At every stage, environmental policy is the result of the combat of stakeholders interested in, and affected by, the problem being addressed and the range of possible solutions. The combatants include any or all of the following: the federal government, environmental advocacy groups, and business, the media, the scientific community, think tanks, NGOs of every stripe, trade associations and professional organizations, and even state and local governments, each of whom have their own interests in the resulting policy. Environmental Politics: Interest Groups, the Media, and the Making of Policy discusses political battles over the environment from ground level - as they are fought in legislative chambers, the daily newspaper, on television, and, increasingly, on the Internet. The text explores environmental politics as a clash of interests, not ideologies, and environmental policy as a result of the reconciliation of those interests. The author covers not only the conventional aspects of the policymaking process but more recent and less recognized elements and developments such as: Proliferation of legislative riders and monument designations as major environmental strategies Evolving role of the media, from science popularizer to agenda setter Growing influence on both Congress and the public of conservative and libertarian foundations and think tanks Devolution of environmental power from the Federal to state governments Metamorphosis of EPA in a business-driven regulatory revolution Effect of globalization on US environmental policy Newly emerging role of the precautionary principle in marrying science and politics Increasing role of the Internet in promoting populist issues and promoting the decentralization of the environmental power structure No other book covers the politics of the environment the way this one does. Written by an expert with 25 years of experience in environmental policymaking, Environmental Politics: Interest Groups, the Media, and the Making of Policy gives you an insider's view of how policies are forged. By examining these issues through an interest group lens, this book not only accounts for what policies have been adopted but also shows how you can influence policy and effect change.

This book explores various and distinct aspects of environmental health literacy (EHL) from the perspective of investigators working in this emerging field and their community partners in research. Chapters aim to distinguish EHL from health literacy and environmental health education in order to classify it as a unique field with its own purposes and outcomes. Contributions in this book represent the key aspects of communication, dissemination and implementation, and social scientific research related to environmental health sciences and the range of expertise and interest in EHL. Readers will learn about the conceptual framework and underlying philosophical tenets of EHL, and its relation to health literacy and communications research. Special attention is given to topics like dissemination and implementation of culturally relevant environmental risk messaging, and promotion of EHL through visual technologies. Authoritative entries by experts also focus on important approaches to advancing EHL through community-engaged research and by engaging teachers and students at an early age through developing innovative STEM curriculum. The significance of theater is highlighted by describing the use of an interactive theater experience as an approach that enables community residents to express themselves in non-verbal ways.

Numerous incidents suggest that man-made sound injures and can kill marine mammals. This book offers an objective look at how ocean noise should be addressed given the lack of regulatory structure and the scientific uncertainty over the effects of noise on marine life. It is an essential text for policymakers, governments and NGOs, biologists, environmental activists, , oceanographers, and those in the shipping, engineering, and offshore oil and gas industries.

Documenting a prominent jurist's efforts, a collection of case studies examines his successes with Vietnam veteran exposure to Agent Orange, asbestos, and DES and repetitive stress syndrome, describes current legal attitudes, and recommends compassionate alternatives. UP.

In Defense of Science

Proceedings of the 1992 Conference of the National Association of Environmental Professionals, May 6 - May 8, 1992, Seattle, Washington

Forum for Applied Research and Public Policy

Trade-Off Analysis for Environmental Projects: An Annotated Bibliography

Benchmarks for Science Literacy

The Effect of Scientific Literacy on Public Opinion of Military Spending Levels - Application to Arguments About Science Education Funding, How Government Agencies Convey Spending to the Public

This volume proposes a new way to conceive of scientific literacy, as it has emerged from two research agendas that the a pursuing independently but which have converged conceptually.

Authoritative and trusted, Environmental Policy once again brings together top scholars to evaluate the changes and contin

American environmental policy since the late 1960s and their implications for the twenty-first century. Students will learn the underlying trends, institutional constraints, and policy dilemmas that shape today's environmental politics. The Eleventh Edition shows how policy has changed within federal institutions and state and local governments, as well as how environmental governance in the private sector policies and practices. There are five new chapters in this edition that examine the public's opinion on the environment, courts, energy policy, natural resource agencies and policies, and the political economy of green growth. The book has been updated to reflect the Trump administration's four years of policy changes and students will walk away with a measured, yet hopeful perspective on the future challenges that policymakers will confront as the American environmental movement continues to affect the political landscape. Today, only a few people outside of the scientific community are conversant with the tradition of science and its many breakthroughs. Most of the rest are scientifically illiterate. So say Frank R. Spellman and Joni Price-Bayer, authors of *In Defense of Science: Why Scientific Literacy Matters*. This book explains why ordinary citizens need to have an understanding of science, its methods, and its groundbreaking discoveries. The authors introduce the most basic scientific concepts in accessible and straightforward language. Along the way, they address several misconceptions of science and scientists, and arrive at a view of science as an integral part of society, policy, and everyday life. Human beings depend on a set of benefits that emerge from functioning ecosystems, termed Ecosystem Services (ES), and many aspects of everyday life that affect these ES. Recent advancements in science have led to an increasingly sophisticated understanding of ES and how they can be used to inform environmental decision-making. Following suit, US science education policy makers have highlighted the importance of learning about ES in the most recent national standards: the Next Generation Science Standards. While recognizing the importance of science education research aimed at empirically exploring what it is one should know about ES, in order to be scientifically literate, is only beginning to gain traction. This dissertation research provides empirical evidence toward this aim. Using a series of Delphi studies, which involve iterative survey of experts in a domain until a consensus is reached, the research described in this dissertation identified: (a) a definition of ES for non-academic audiences, (b) a set of big ideas important to connecting ES to everyday environmental decisions, (c) important questions that citizens can ask when evaluating claims and making decisions about ES, and (d) practical strategies that citizens can use to find scientific resources (e.g. evidence, testimony) that can help them find answers to these important questions. Delphi Studies provided an academic expert-based postulate regarding what one needs to know about ES in order to be scientifically literate, however, research on scientific literacy cannot rely solely on the views of experts. Following a model for empirical research on scientific literacy proposed by Feinstein, I compliment these expert-based descriptions with research on authentic engagement with science to see if the knowledge postulated as important, is actually used in productive ways. The results of this research underscore the importance of the NRC Crosscutting concepts for scientific literacy writ large, provide a justification for including ES under multiple Disciplinary Ideas, emphasize the importance of knowledge about the nature of scientific evidence, and accentuate a need to clarify how science practices in decision-making roles. Implications for research on scientific literacy writ large and classroom instructional practices are discussed.

Globalisation, Multilateralism, Europe

Assessing Schools for Generation R (Responsibility)

Advancing Science Literacy, Knowledge, and Know-How

Environmental Literacy in Science and Society

Environmental Health Literacy

Socioscientific Issues-Based Instruction for Scientific Literacy Development

Science is a way of knowing about the world. At once a process, a product, and an institution, science enables people to both engage in the construction of new knowledge as well as use information to achieve desired ends. Access to science—whether using knowledge or creating it—necessitates some level of familiarity with the enterprise and practice of science: we refer to this as science literacy. Science literacy is desirable not only for individuals, but also for the health and well-being of communities and society. More than just basic knowledge of science facts, contemporary definitions of science literacy have expanded to include understandings of scientific processes and practices, familiarity with how science and scientists work, a capacity to weigh and evaluate the products of science, and an ability to engage in civic decisions about the value of science. Although science literacy has traditionally been seen as the responsibility of individuals, individuals are nested within communities that are nested within societies—and, as a result, individual science literacy is limited or enhanced by the circumstances of that nesting. Science Literacy studies the role of science literacy in public support of science. This report synthesizes the available research literature on science literacy, makes recommendations on the need to improve the understanding of science and scientific research in the United States, and considers the relationship between scientific literacy and support for and use of science and research.

Existing environmental policy formulation demonstrates disenfranchisement of the public by vested and parochial interests. While this paradox can be somewhat attributed to the interaction of the politico-legal system with science, a major contributor to the problem of the formulation of effective policy is scientific illiteracy. The dilemmas are explored in this book through the contexts of pharmaceutical innovation and environmental threats posed by biotechnology which represent scientific innovation. Through examination of inspired unilateral programs, this study synthesizes an appropriate reform program.

Benefits and Challenges

Climate Smart & Energy Wise

Individual Justice in Mass Tort Litigation

Connections and Directions

WHERE YOU CAN HEAR THE SEA & S

A New Vision for Health, Happiness, and Prosperity