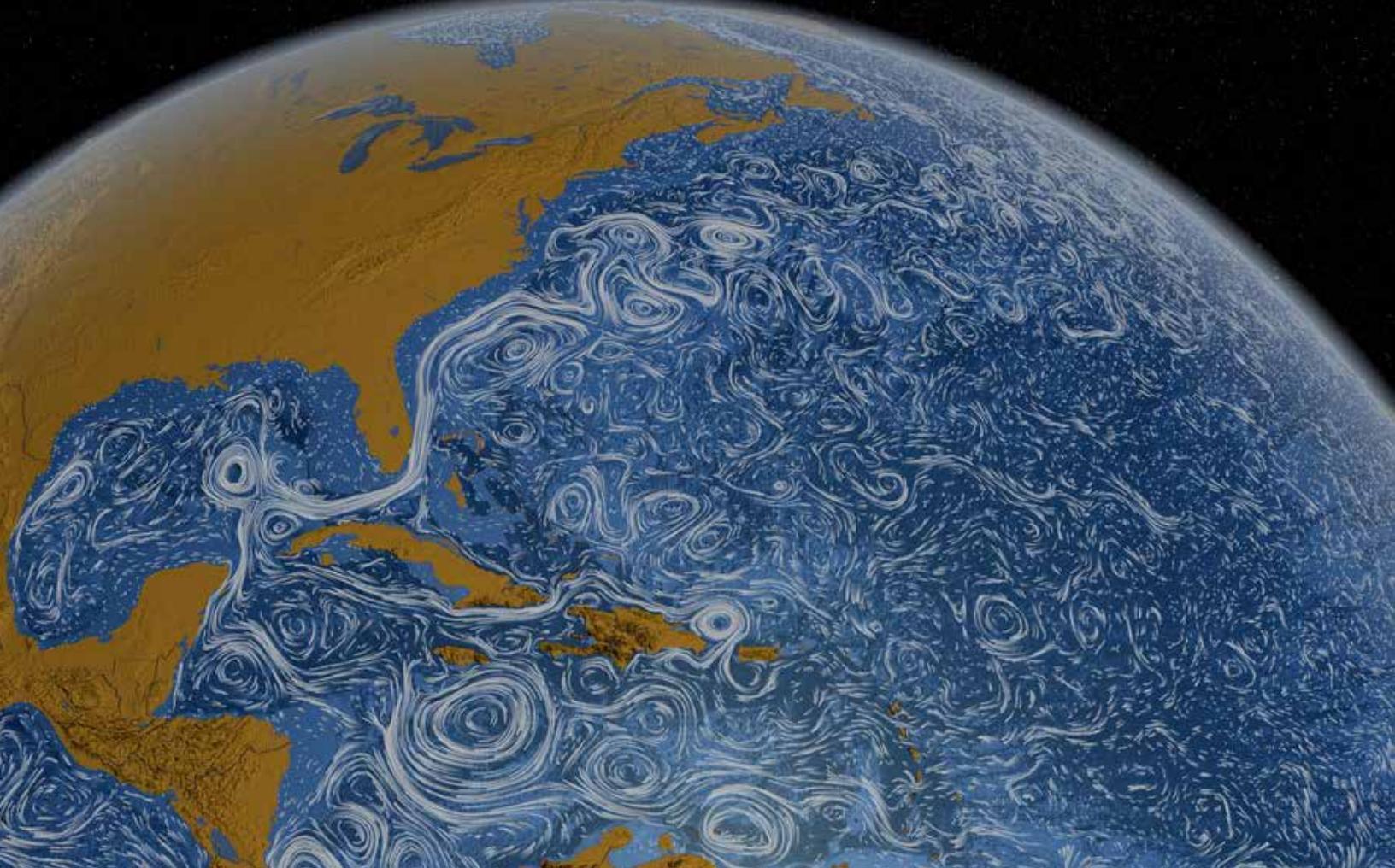


...WHY DOES FRESH WATER MATTER? IT IS PERFECTLY CLEAR THAT WE CANNOT SUSTAIN THE OCEAN WITHOUT SUSTAINING OUR FRESHWATER SYSTEMS. WE CAN NO LONGER TOLERATE THE CONTINUOUS DECLINE IN QUALITY AND TREATMENT AT THE SOURCE AND EXPECT THAT THE OCEAN WILL REMAIN UNAFFECTED BY THE VOLUMES OF WASTE AND TOXICITY THAT CAUSE RED TIDES AND DEAD SEAS. THERE IS PROOF ENOUGH. THE WATER CYCLE, FROM MOUNTAINTOP TO ABYSSAL PLAIN, IS A CONTINUOUS LOOP. NO PART CAN REMAIN HEALTHY AS ANOTHER PART STRUGGLES TO SURVIVE.

FROM *THE ONCE AND FUTURE OCEAN*
NOTES TOWARD A NEW HYDRAULIC SOCIETY
BY PETER NEILL
256 PAGES
APRIL, 2016





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THE SEA CONNECTS ALL THINGS

by Peter Neill

For many, the ocean is a place apart, a vast wilderness extending beyond our physical and psychological horizons, at once alien and indifferent, fascinating and compelling, and about which we know very little. But consider these facts:

-  The ocean covers 71% of the earth's surface;
-  The ocean is a central element in the recycling and purification of fresh water;
-  The ocean provides 40% of the world's protein, especially in developing nations;
-  More than 200 million people worldwide are dependent on the ocean for their livelihood;
-  65% of the world's population lives within 100 miles of an ocean coast.

The reality is that the ocean is essential to human survival, a primary source of food, water, climate, and community – immediate, universal, and undeniable. In short, the ocean is the determinant ecology in which we live: the sea connects all things. If, indeed, all life is dependent on the ocean, then this understanding calls for its new definition as an inter-connected, global ecosystem that integrates natural process, habitat, and species with human intervention and impact; as a comprehensive social system that integrates human needs and actions; and as a complex political system that integrates all peoples worldwide through economic interests,

cultural traditions, and cooperative governance.

Thus, when we envision the ocean as a wilderness, we are ignoring the reality of the ocean as a domesticated place where humans have left their mark throughout history, by exploration and exploitation, immigration and trade, and the exchange of custom and culture. To look today from a satellite, one can see that the ocean is marked constantly by the tracks of ships, the tools of globalization through marine transport as old as the ancient Chinese in the Pacific, the Phoenicians in the Mediterranean, and the Vikings in the Atlantic.

What has changed over time, however, is the impact of human population growth whereby the use of the ocean has increased to the moment when it evinces a shift from abundance to scarcity and from accommodation to conflict.

This is well-exemplified by the crisis in fisheries. Research has documented the collapse of certain species such as cod that once formed the staple diet of much of North America and Europe, a result of a complex of causes to include unrestricted catch, the advent of new, efficient gear and technology, and the unwillingness of fishers, both artisanal and industrial, to work cooperatively toward a sustainable harvest. This problem was further compounded by the difficulty of regulation, a result of lack of jurisdiction outside of national economic zones, the inability to monitor or enforce quotas, and the failure of governance to address the challenge.

There are many other examples. What underlies them all, however, is the understanding that just as there are social causes to these problems, there must also be social solutions. We can complain and accuse and litigate, much as we do for similar behavior on land, but the true solution lies with our determination to deal with both the cause and effect of our need to domesticate Nature—whether terrestrial or marine—for human use, and to engage in the dialogue and change required to conserve and sustain all natural resources for the benefit of all mankind.

To inform this understanding is the purpose of the World Ocean Observatory.



Peter Neill is founder and director of the World Ocean Observatory. He is host of World Ocean Radio and is a regular contributor to maritime publications, Medium.com, and the HuffingtonPost.com.

HISTORY:

In 1998, Mario Soares, former President of Portugal, ocean exemplary, “father of democracy,” organized the Independent WORLD COMMISSION ON THE OCEANS to create an agenda for the sustainability of the oceans. The final report, *The Ocean Our Future*, calls for an internet-based ocean observatory to bring together relevant information about the health of the ocean. At the same time “the observatory would serve as an interactive virtual observation site for all ocean-related information, providing direct links to all relevant sites.”

The World Ocean Observatory is the realization of that recommendation.

Mario Soares passed away in January of 2017.

MISSION:

To serve as a central place of exchange for ocean information, education and public discourse;

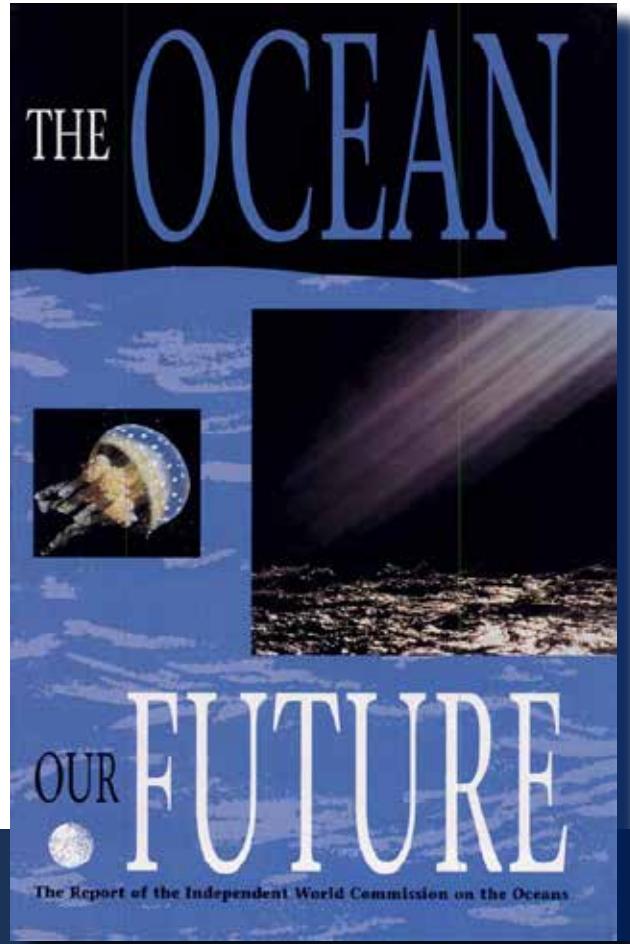
To serve as an independent forum and focus for ocean affairs;

To advocate for the ocean through an open, worldwide network of communication;

To provide a window on the future of the ocean for the general public and decision-makers around the world;

To inspire young Citizens of the Ocean through formal and informal education worldwide.

Follow us on:



WORLD OCEAN OBSERVATORY

is dedicated to information, education, and public discourse about the ocean defined as an integrated global social system. We believe that informed citizens worldwide can unite to sustain the ocean through adaptation and change of human behavior on land and sea. Our focus is the full spectrum of ocean issues: climate, fresh water, food, energy, trade, transportation, public health, finance, governance, security, recreation, and culture.

For fourteen years, World Ocean Observatory has advocated for the ocean through independent, responsible, apolitical science, and has been committed to advancing public understanding of ocean issues through institutional collaboration and partnership, pro-active programs, multiple communications tools, and connection with individual subscribers around the world.

It is our belief that the sea connects all things...



A COMMUNICATIONS STRATEGY

The WORLD OCEAN remains critically challenged, and yet we must depend on it for every aspect of our future survival: fresh water, food, energy, and health. While the environmental community has made some progress in certain areas of regulation and conservation, that effort has not succeeded in building adequate public awareness, understanding, and political will. The WORLD OCEAN OBSERVATORY uniquely occupies that strategic niche as a major utility for ocean communication as a means to advance public awareness and political will, providing comprehensive resources on ocean issues through a weekly World Ocean Radio podcast; the *World Ocean Forum* blog; the World Ocean Aquarium as a means to increase ocean literacy; a monthly newsletter; an annual e-magazine, the *World Ocean Journal*; an 18,000-member directory of ocean-related organizations located throughout the world; an extensive catalog of online resources; a dynamic You Tube channel with original and curated content on the major issues facing the world ocean today; a social network of hundreds of thousands of individuals and organizations; and multiple worldwide partnerships. It is the goal of the WORLD OCEAN OBSERVATORY to provide responsible science-based information to institutions, experts, students, teachers, and curious citizens around the world.

In July 2013, the Ocean Exploration 2020 Forum took place in Long Beach, California, a gathering of 175 United States ocean exploration leadership charged by the U.S. Congress to recommend an oceanographic agenda and specific research goals and objectives actionable by 2020. The WORLD OCEAN OBSERVATORY was there, as were most of the major American research vessels, ocean institutes, universities with ocean programs, and ocean not-for-profits. The conference surveyed its participants and the prevailing priority was this:



94 percent of respondents recommended secondary education and public outreach as the most important recommendation for the future of American oceanographic research;



93 percent of respondents agreed that the science community must engage with the public in an active two-way dialogue to bolster support for ocean exploration;



The overwhelming consensus was the need for education at the secondary school level, and for communications strategies designed to amplify public awareness of ocean science, conservation, and the meaning of the ocean for the future.

Communications, then, is the missing link. This is the purpose of the WORLD OCEAN OBSERVATORY: to expand strategies related to sharing resources and teaching tools on ocean issues, conservation, and solutions. The future of the ocean depends on a dramatic amplification of these tools and this conversation. Our aim is to build audiences exponentially and to be a major catalyst for transformative behavior for the future of the ocean.

Join the conversation



WORLD OCEAN JOURNAL

WORLD OCEAN OBSERVATORY

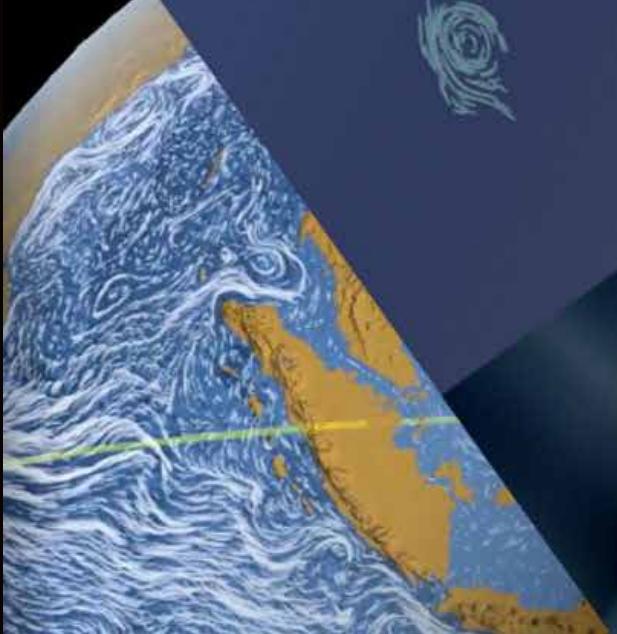
VOLUME THREE, 2016

World Ocean Journal is an e-magazine on ocean culture and solutions to today's ocean issues. Each volume includes essays, interviews, art, exhibits, and performances profiling the vital impacts of the ocean on our lives. Future editions focus on a particular theme. The 2016 *Journal* theme, published in December, is fresh water and a new "hydraulic society."

WATER IS LIFE

The ONCE AND FOR ALL
Notes toward a
Hydraulic Society
by Peter Neill
With a foreword by
Dr. Paul Mayewski
Director, Climate Change Institute
University of Maine
398 Pages
Formats: Cloth, Trade paper,
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Trade paper, \$18.95
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IPGbook.com, and through your
favorite bookstore.

ABOUT THE WO





WORLD OCEAN AQUARIUM AND THE WORLD OCEAN EXPLORER

ABOUT

World Ocean Aquarium: an immersive, interactive gaming platform designed to promote ocean literacy amongst students ages 10 and beyond worldwide.

ABSTRACT

In 2016, the World Ocean Observatory announced the development of a WORLD OCEAN AQUARIUM, a virtual gaming experience, based on realistic aquarium design and presentation, that will enable visitors on any internet-connected device to engage with the marine environment and the many educational services, goal-oriented activities such as operating an ROV, collecting species samples, visiting hydrothermal vents, exploring NOAA's Science on a Sphere, and watching documentaries and short films in a virtual aquarium theater.

Through computer gaming software and method of delivery to appeal to contemporary users, WOA simulates the presentation and purpose of physical aquariums, showcasing species and habitat in both the Northern and Southern Hemispheres not otherwise available for display in an aquarium.

For school settings, the inclusion of the WORLD OCEAN AQUARIUM will allow for the addition of the natural ocean context to its educational programs and outreach through a digital visit by students or a guided tour led by an educator. Access would be enabled through any device into homes, classrooms, and other venues – including projection in physical spaces – that would enhance the understanding of the relationships between the ocean and human endeavor.

World Ocean Aquarium is a virtual gaming experience based on realistic aquarium design. In addition to the manned submersible *Explorer*, users will be able to engage with the marine environment and educational services including a visualization theater, NOAA's Science on a Sphere, and learn about species and habitat in both the northern and southern hemispheres that are not otherwise available for display in an aquarium setting.

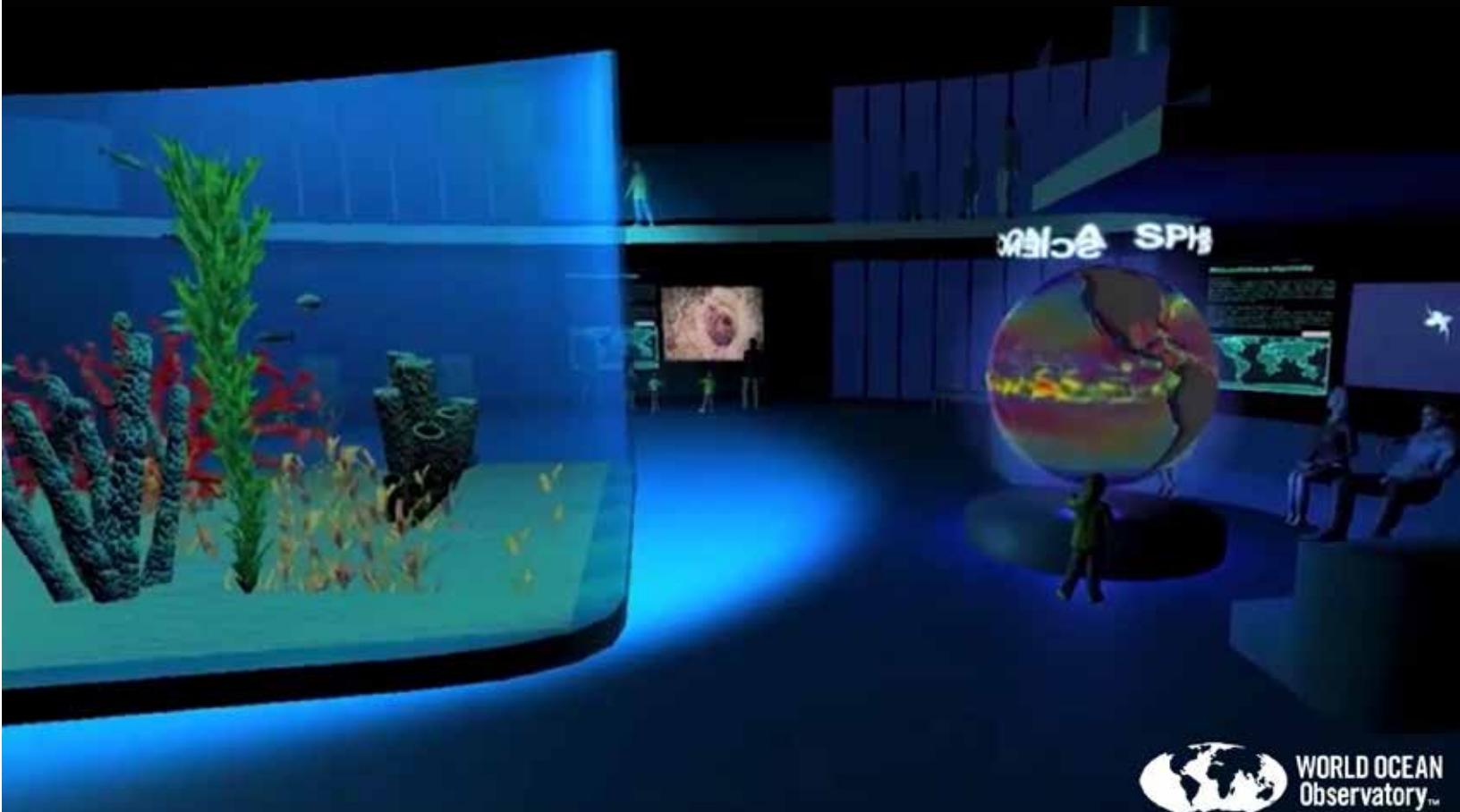


Aboard the manned submersible *Explorer*, users will be able to select an avatar and choose between mission or free-play exploration scenarios and dive to ocean depths rarely explored. Students and educators will be encouraged to research, discover, and learn about ocean systems, gather, analyze and export data, and design and discuss solutions in the classroom.

WORLD OCEAN AQUARIUM

World Ocean Aquarium and the World Ocean *Explorer*: an immersive submersible gaming experience designed to excite students ages 10 and beyond about scientific ocean exploration and to promote ocean literacy worldwide.

The ocean is 95% unexplored... So states the seventh principle of the ocean literacy curriculum, a framework designed to address the lack of ocean-related content in state and national science education standards. New technologies are expanding our abilities to explore ocean systems, and scientists are relying more on equipment such as satellites, ocean mapping, subsea observatories and deep sea submersibles. Enter World Ocean Aquarium, an interactive submersible gaming experience. Users will experience a realistic aquarium environment filled with marine species rarely seen and newly discovered. Aboard Explorer, users will experience different underwater environments: exploring hydrothermal vents in the deep sea; the dense, cold waters of a Polar region; and the biodiverse wonders of a tropical coral reef. World Ocean Explorer could be launched from the Aquarium platform or exist as a stand-alone gaming experience. The World Ocean Aquarium is a large immersive platform explorable by students and educators alike: users can walk through the aquarium, learn about marine species unavailable in a traditional aquarium setting, watch educational short films in the theater, and board the manned submersible Explorer for missions and explorations around the globe.





AN ARGUMENT FOR SUPPORT

GOALS

-  To connect with a more globally diverse world audience.
-  To consolidate and broaden communications about ocean issues and solutions.
-  To redefine the meaning of the ocean and its relationship to the world community.
-  To enable access to and delivery of content, presentations and partner initiatives.
-  To establish a solid financial structure to assure organizational continuity.

WHY SUPPORT the WORLD OCEAN OBSERVATORY?

Many good projects are funded and implemented by many donors with ocean interests, often at great expense. If, despite these efforts, there remains a communications breakdown whereby outcomes are limited by inadequate public awareness, then a new communications model is necessary. Most organizations devote their resources to marketing their particular programs and endeavors and to engage their audience through membership publications, public relations, and individualized social media.

We must do more. It is clear we must build a comprehensive, accessible, relentless program of communications to reach the largest audience possible worldwide. We must move beyond wishful thinking and inadequate action, and the only way not yet tested is this global engagement we propose.

The World Ocean Observatory offers a new model for ocean communications, aggregating comprehensive ocean information, consolidating educational resources, promoting other organizations' programs and successes, amplifying the ocean message, and multiplying ocean engagement with an audience above and beyond that of any individual endeavor. We are a collective voice for many ocean voices, a central place of exchange of content and accomplishment, and the promoter of best practices, innovation, and effective connection to the global ocean community.

Today we perform this task with energy, imagination, economy, and efficiency, reaching a significant audience worldwide through the free distribution of a full catalogue of ocean information. We do so at modest cost, with a conservative annual budget, all program expended, provided by a small number of prescient donors who understand our concept, see our results, and are committed to our future.

Our challenge is to reach an exponentially larger number of ocean advocates, to engage and link to ocean organizations and individuals at a scale that truly matters, through an informed, exciting, relentless, and enduring program of communications based on the understanding that the sea connects all things.

ENDOWING OUR OPERATIONS for the FUTURE

We invite your participation, and urge you to contact us to discuss your interest at DIRECTOR@THEW2O.NET. With your help, every day, and every person, will add to the prospect of success.

Thank you for your consideration.

WORLD OCEAN FORUM™

Launched in 2015, World Ocean Forum™ addresses fresh ideas and new solutions, to provide serious, provocative, and imaginative conversations about the future of the ocean, linking unexpected people with unexpected ideas. World Ocean Forum™ invites key ocean voices, professionals, and Citizens of the Ocean to contribute to an active forum of opinion, ideas, and proposals for change in ocean policy and action worldwide.

Online at medium.com/world-ocean-forum



Changing Ocean Acidity & The Effects on Marine Life
Dr. Victoria Fabry, Scripps Institution of Oceanography



SITE AT A GLANCE

OCEAN TODAY

Ocean Climate

- The Arctic
- Biodiversity
- CO₂ Emissions
- Coastal Resources
- Disease
- Economic Effects
- Extreme Weather
- Fresh Water
- Fresh Water to Ocean
- Ocean Acidification
- Ocean Currents
- Small Island Nations
- Adaptation
- Invention
- Mitigation
- Participation

Ocean Literacy

- One Big Ocean
- Shaping the Features of the Earth
- Weather and Climate
- A Habitable Planet
- Diversity of Life
- Humans and the Ocean
- An Unexplored Landscape

The Physical Ocean

- UN World Ocean Assessment
- UN Atlas of the Oceans
- Census of Marine Life
- IOC/UNESCO
- US Ocean Policy
- EU Ocean Policy
- NOAA Ocean Explorer
- Google Ocean
- Millennium Ecosystem Assessment
- UNEP: MES Synthesis Report
- Encyclopedia of Life
- Eye on Earth
- International Polar Year

The Cultural Ocean

Magazines & Journals

Maritime History

Ocean Art

Maritime Traditions

Further Reading

Citizens of the Ocean

Lighthouse Projects

Exemplars

50 Ways to Save the Ocean

Five Things You Can Do TODAY

Take Action

Ten Ways to Use Less Plastic

The Ocean as a Classroom

Curriculum Catalog

Ocean Careers

Resources

STEM (science, tech, engineering, math)

Visualization Theater

World Ocean Media

Ocean Directory

Ocean Governance

Ocean Policy

Ocean Research

Coastal Issues

Commerce

Conservation

Cultural History and Traditions



Fisheries and Food

- [Fresh Water and Sanitation](#)
- [Law of the Sea](#)
- [Marine Biology](#)
- [Ocean Data](#)
- [Ocean Energy](#)
- [Ocean Planning](#)
- [Curriculum Catalog](#)
- [Ocean Careers](#)
- [World Ocean Media](#)
- [Visualization Theater | Ocean Events](#)

RESOURCES

- [World Ocean Aquarium](#)
- [World Ocean Exhibits](#)
- [World Ocean Forum](#)
- [World Ocean Journal](#)
- [World Ocean Observer](#)
- [World Ocean Radio](#)
- [World Ocean Solutions](#)
- [World Ocean Video](#)
- [World Ocean Weekly](#)
- [Breaking Waves: Daily Ocean News Digest](#)
- [Our Ocean Space](#)
- [The Once and Future Ocean](#)
- [The Sea Connects All Things Lecture](#)
- [Subscription Services
 - \[Module I: Ocean Climate\]\(#\)
 - \[Module II: Ocean Biodiversity\]\(#\)
 - \[Module III: Ocean Energy\]\(#\)](#)

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PARTNERS

- [Climate Change Institute](#)
- [Global Forum on Oceans, Coasts and Islands](#)
- [Global Ocean Commission](#)
- [Global Partnership for the Ocean](#)
- [Ocean Elders](#)
- [Ocean Health Index](#)
- [The Ocean Project](#)
- [SEVENSEAS Conservation & Travel Magazine](#)
- [Subscription Service Affiliates](#)
- [The TerraMar Project](#)
- [UNESCO IOC/UN Atlas of the Oceans](#)
- [World Ocean Network](#)





SOCIAL ENGAGEMENT

FACEBOOK

World Ocean Observatory's Facebook page surpassed 368,000 likes in January, 2017. Viewers see on average five posts per day, ranging from issues of policy, ocean news, technology, calls to take action and petitions to sign, fascinating ocean creatures, inspiring stories, and beautiful photographs by some of the world's most intrepid enthusiasts and explorers. This social media network of nearly 400,000 has built quickly, growing from just 300 page likes in January 2013 to the widespread recognition and engagement enjoyed today. We expect this audience to continue to grow.



MEDIUM.COM

Medium is a blogging platform which gained in popularity in 2016. It is a place to read, write, and interact with 21st stories that matter. World Ocean Observatory posts a blog entry each week to our page (online at medium.com/@TheW2O) and contributes to and invites submissions to its World Ocean Forum publication page (medium.com/world-ocean-forum.) World Ocean Forum invites fresh ideas, new solutions, provocative and imaginative conversations about the future of the ocean, linking unexpected people with unexpected ideas.



World Ocean Observatory

Dedicated to sharing information about ocean issues: climate to trade, culture to governance. The sea connects all things. Online at WorldOceanObservatory.org.



Editor of [World Ocean Forum](#)

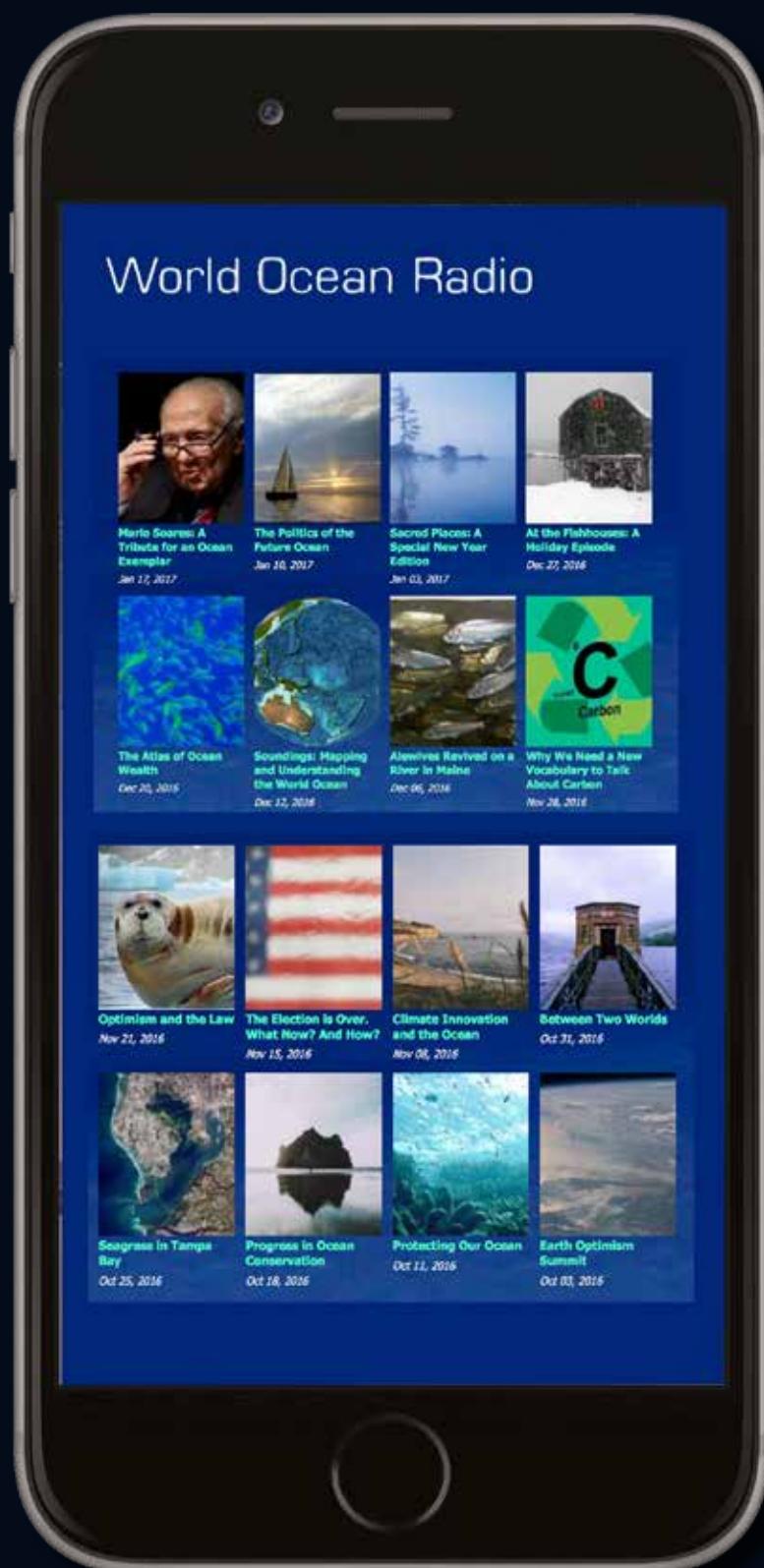


Join the conversation



WORLD OCEAN RADIO™

A weekly series of five-minute audio essays on a wide range of ocean issues from science and education to advocacy and exemplary projects, brought to you by long-time host and World Ocean Observatory director Peter Neill. More than 350 episodes are now available for RSS feed, podcast, and syndicated use at no cost by college, community, and public radio stations worldwide. We distribute weekly throughout North America, Europe, Hong Kong, Australia, New Zealand, and Africa. **World Ocean Radio™** broadcasts a selection of episodes in Portuguese, Spanish, French, Swahili and Mandarin. Four episodes are chosen each year for translation, audio recording, and broadcast. In 2017 we wish to add Russian and Japanese to the language selection, enabling us to further connect with more than 75% of the world's population.





PARTNERSHIPS & COLLABORATIONS

WorldOceanObservatory.org/content/partners

World Ocean Observatory is proud of the many relationships and cooperative partnerships with organizations and groups that have similarly-aligned missions--working to protect the health of the ocean and building a global community of ocean advocates. Collaborating with policy makers, communications experts, scientific and research-based non-profits, educational and government organizations, the World Ocean Observatory is expanding ocean communications, education, outreach, and connection worldwide. Here is a partial list of partners:

CENSUS OF MARINE LIFE

CLIMATE CHANGE INSTITUTE

GLOBAL FORUM on OCEANS, COASTS, and ISLANDS

GLOBAL OCEAN COMMISSION

GLOBAL PARTNERSHIP for the OCEAN

GOOGLE OCEAN

INTERNATIONAL CONGRESS of MARITIME MUSEUMS

MAINE ARCTIC CONSORTIUM

MISSION BLUE

MISSION OCEAN

OCEAN ELDERS

OCEAN HEALTH INDEX

THE OCEAN PROJECT

OUR CHILDREN'S TRUST

SEASTEADING INSTITUTE

SEVENSEAS MAGAZINE

SMITHSONIAN INSTITUTION'S OCEAN PORTAL

THE TERRAMAR PROJECT

UNESCO IOC/UN ATLAS of the OCEAN

WHAT'S NEXT PROJECT

WORLD OCEAN NETWORK

WORLD REGISTRY of MARINE SPECIES



SMITHSONIAN INSTITUTION OCEAN PORTAL AND THE EARTH OPTIMISM SUMMIT

In advance of the Earth Optimism Summit to take place in Washington, D.C. and around the globe during Earth Day weekend, April 21st through 23rd, 2017, World Ocean Radio and the Smithsonian Institution's Ocean Portal have teamed up to profile conservation actions and innovations to reduce our impacts on the planet.

The Earth Optimism Summit is a celebration of success, where the science and stories of conservation accomplishments are shared and discussed. Thought leaders, practitioners, researchers, major civic and industry participants, philanthropists and the media will gather to celebrate the magnitude and diversity of what is working in conservation, moving the discussion from doom and gloom to optimism and opportunity.

Share your ideas at earthoptimism.si.edu.

WORLD OCEAN RADIO
AND THE
SMITHSONIAN
CONSERVATION COMMONS





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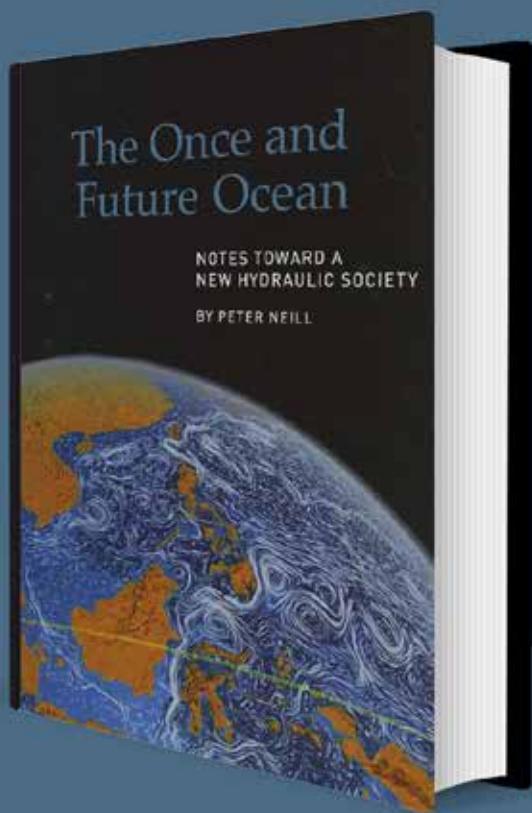
Trisha Badger, Managing Director
Peter Neill, Director & Founder

Join the conversation



THE ONCE AND FUTURE OCEAN

Since its founding in 2003, the World Ocean Observatory has propelled a public conversation about the ocean as an integrated, global, social system, transcending conventional focus on species and habitat to relate the ocean to the many additional social, political, financial, and cultural issues that must be addressed if we are to implement transformational change. Peter Neill, founder and director of the World Ocean Observatory, has emphasized the need to look forward, to invent, and to define an essential shift in values, strategies, and behaviors required to assure a sustainable ocean for the benefit of future generations. He has assembled his thoughts into *The Once and Future Ocean: Notes Toward a New Hydraulic Society*, published by Leete's Island Books in early 2016 and available wherever books are sold.



**With a forward by Dr. Paul Mayewski
Director, Climate Change Institute
398 Pages**

**Formats: Cloth, Trade Paper,
MobiPocket, EPub**

Trade Paper: \$18.95, EPub: \$9.99

ISBN 9780918172563

ABOUT THE W2O

WORLD OCEAN OBSERVATORY (W2O) is a major utility for ocean communication as a means to advance public awareness and political will, and is dedicated to providing information and education about the health of the ocean. We believe that informed citizens worldwide can unite to sustain the ocean through mitigation and change of human behavior on land and sea. Our focus is the full spectrum of ocean issues: climate, fresh water, food, energy, trade, transportation, public health, finance, governance, security, recreation, and culture. It is our belief that the sea connects all things.

OUR MISSION

Through education, partnership, information exchange, public connection, and relentless communications, W2O is committed to building an expansive global community of Citizens of the Ocean to promote and conserve marine resources for the future of all mankind.



Join the conversation

