

Connecting the WOW! (Wonders of the Ocean World): Creating an Ocean Literate Society

June 5th at 2:00 pm in Hart 216

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Thank you for the opportunity to speak to such a distinguished group about a topic that has puzzled and inspired me most of my life - ocean education, or how to integrate the sea into people's lives in a meaningful way.

My own education was revolutionary, being thrown off a ship with experimental diving gear at age 7. In many ways, from that time on, I never left the sea. My traditional schooling in France was salted with time onboard *Calypso*, exploring with my seafaring father and mother. I can identify with Herman Melville, author of Moby Dick fame, who signed on a whaling vessel to support his family and said time at sea was "his Harvard and his Yale." So there are precedents for what I'm about to propose.

First though, what do we mean by an ocean literate society? Fundamentally, it's people with a solid understanding of how the ocean works and is connected to their lives. In order to sustainably manage our ocean resources, we need an informed public who understands the value of the sea and who is willing to support responsible governance.

There are pragmatic reasons why Americans need to understand this. Do you know that in the United States one in every six jobs is marine related? Or that the ocean also serves as a massive super highway - with more than 95% of imported goods entering the country via the nation's seaports? And, that the ocean provides 20% of the protein in people's diets worldwide?

Over-exploitation of fish and shellfish, pollution, the loss of species and habitats, and mismanagement of on-land resources are undermining the ability of the sea to continue to provide these goods and services. I believe having people, particularly young people, who understand fundamental connections among ecological systems and principles is essential to protecting and managing these ocean resources wisely.

This is a functional approach where the value of species and communities are shown according to the work they perform in keeping ecosystems functioning and where the benefits to humans are made clear

Most environmental education programs impart isolated facts about the ocean. It is apparently assumed that if one knows how to measure temperature, salinity, or to name an organism, then one understands ecology. I disagree. We need to integrate these facts into a working whole, a working model, and relate them to our moral and ethical obligations to nature, to other people, and to the future.

My belief is that we should, of course, teach the basics but also make absolutely sure that the connections of one region of the sea or one ecosystem or a suite of species is related to the others. Such conceptual models should include the element of time and that ocean systems are dynamic, and that to manage them we had better take into consideration such variability. Fisheries are a good example, where we presume to know what a sustainable catch is and exploit up to or beyond that limit. Then a natural catastrophe arises and we see our whole sustainable edifice fall apart. Ignorance, along with greed, results in the loss of resources, loss of economic benefits, and a lot of human suffering.

So I believe an ocean literate society must also understand the consequences to the ocean ecosystem of human behavior.

We need to focus on the fundamental principles of natural science and ecology that apply to all systems. We need to better teach our young people how to think about these things, not just how to memorize the parts.

I believe we need to show that everything is connected. All components of the biosphere - land to the sea, the ocean to people, people to people and the present to the future. These connections should be both intellectual and emotional – the head and the heart. I mention the heart because, ultimately, it is our emotions that usually drive our decisions.

We all know that we are in an age of information overload. We have enough research on most ecological topics to make sound, common sense decisions that are pretty much on target to protect the ocean and ourselves. But we don't act on this information. Why? I believe it is because we're not emotionally inspired and that is because we haven't yet incorporated a quality of inspiration into our educational system. My team and I have struggled with this for the past 30 years and here's what we do.

We take people to sea. Plain and simple.

For 28 years, through Project Ocean Search and our Ambassadors of the Environment program, my team and I put young people into the natural environment--we use the ocean and coastlines as living laboratories and outdoor classrooms. We make sure to instill a spirit of teamwork and to increase self-confidence in making good ecological decisions. For one magical week, we show kids the wonder of nature and how marine species collectively create sustainable communities. We focus on the interconnections of land and sea and the sea and people. And we make sure to offer opportunities for them to connect to nature personally, through activities such as snorkeling at night surrounded by bioluminescent plankton or swimming through a kelp canopy.

I realize that not every school system and not every parent can afford to send their kids to sea. So what else can we do?

There are affordable options and there is no group better able to make it happen than those of you here today:

Among the steps that can immediately be done, with your support, are the following:

1. If there is only one thing you can do now, I urge you to support our network of Marine Sanctuaries as a number one educational priority. Why? Because the network of marine sanctuaries connects our most treasured marine resources, they are national in scope, and they have developed programs to reach Americans with an appropriate experience of the natural world. And perhaps most of all, they give us hope and a plan to be better environmental stewards.
2. Help our school systems and teachers to incorporate experiences outside the classroom—revive field trips where kids can have an experience, even if it is counting gulls at the beach and discussing how trash thrown in the street in town can harm them.
3. Take advantage of the resources offered by local natural history museums, or local nature centers, places often underutilized but staffed with enthusiastic and informed people. Get in touch with the Marine Stewardship Council.
4. If we can't get to sea, bring the sea in by contacting the Marine Aquarium Council that certifies aquarium animals as being responsibly caught. Create a school aquarium in a public place where every student can benefit. Let individual students serve as docents.
5. Let the technological revolution work for the ocean by using the best of films and websites. My father dreamt of technology reaching a point where real zoos would be replaced by holographic experiences we would now call virtual reality zoos—we need to strive for something equally engaging for the sea.
6. And let's not forget that one of the most powerful educational tools is that people learn from other people. There is nothing like a story to engage a child's interest and when told by a respected adult, it's unforgettable. Find and invite these people with stories to tell into the classroom. If they're not available, read the words of classic sea stories to the class. Let the magic of the sea do the work, the heart will follow.

It is a long-standing American tradition to take to sea in times of hardship, to turn unruly young men into strong, responsible adults by a trial at sea. As a society, we need exactly that--to turn again to the ocean and its profound principles of life to inspire a new generation of young people, who better understand how the world works, who know that the sea runs in their veins, who love it and will protect it. Thank you.