



The Ocean Climate Connection & The Power of Youth Action

I. Overview

It is a simple fact that we cannot solve the climate crisis nor the global collapse of biodiversity without protecting and restoring the ocean. The ocean and climate are inextricably linked. Covering 70 percent of the Earth's surface, the ocean transports heat from the equator to the poles, regulating our climate and weather patterns. But the ocean also absorbs excess heat from our atmosphere resulting in a net increase in ocean temperatures which alters this natural transfer of heat, changes ocean chemistry, transforms marine biodiversity, and results in rising sea levels. For this reason, climate change—the warming of the earth—is fundamentally an ocean issue.

Our changing climate has already caused devastation around the world—from extreme storms to life threatening droughts and wildfires, a collapse in biodiversity, and warming ocean temperatures, this crisis is an unprecedented threat to humanity. While the ocean is often seen as a victim of climate change, it is also the most powerful solution. A thriving ocean could absorb more carbon from the atmosphere, robust coastal habitats could protect millions from extreme storms and stop the global collapse of marine biodiversity, healthy fish stocks could feed billions of people, and healthy ecosystems would be a critical bulwark against the worst effects of a warming planet.

Fortunately, there is a sector of society that is primed to act and generate large-scale momentum to restore our ocean to abundance and health: youth.

Activating/engaging this audience is key to building a durable conservation movement that can move with the speed and audacity needed to transform the future, and EarthEcho International is at the forefront of that work.

II. Ocean Challenges

The challenges facing the ocean are complex and interrelated and the ocean system, contrary to popular belief, takes a long time to recover. The healthier and stronger ocean ecosystems are, the more quickly they can recover. Think of a fit, healthy person. If that individual gets an infection, they may be sick for a short while but the body can mount a response and clear the infection. If that person is immunocompromised, however, or has a failure in a critical organ

system then the body cannot regenerate the immune response to outpace the infection. The same is true for the ocean. The more factors negatively impacting the ocean, the less resilient it becomes. The following section outlines some of the most serious challenges impacting ocean health.

Pollution - Pollution poses a catastrophic threat to the ocean's health, and it comes in many forms.

Plastic – Every year approximately 8 million tons of plastic enters our ocean. That is the equivalent of at least one NYC garbage truck dumping a full load of plastic trash into the ocean every minute of every day for a year. That is on top of the estimated 100 million metric tons of plastic already floating throughout the ocean. According to the Ocean Conservancy, plastics now impact nearly 700 species in our ocean, and it is found in more than 60% of all seabirds and in 100% of sea turtles species.

Oil—Every year, hundreds of millions of gallons of oil enter the ocean from devastating oil spills such as the Deepwater Horizon oil disaster, as well as from smaller persistent leaks from cars and trucks on the roadways and other impervious surfaces, and leaks from airplanes, small boats, jet skis, and other watercraft. Once oil enters the ocean environment it wreaks havoc, choking and killing sea life and causing lesions, disrupting reproduction, and causing birth defects, thus impacting future generations.

Runoff – Rainwater, melted snow, or irrigation water that can't penetrate the soil due to impervious surfaces or compaction instead runs into local waterways. This results in a toxic mix of agricultural chemicals and fine silt particles along with urban stormwater and wastewater (sewage) going directly into streams, rivers, and lakes that ultimately run into the ocean.

Overfishing – According to the Food and Agricultural Organization of the United States, 90 percent of fish stocks are now either fully fished or overfished at biologically unsustainable levels.

Acidification – Our ocean is a giant carbon sink absorbing approximately 25% of the excess carbon that human activity has released into the atmosphere. According to the NOAA Ocean Acidification Program, "Since the industrial revolution, the atmospheric concentration of carbon dioxide has increased from 280 to over 400 parts per million due to the burning of fossil fuels such as coal, gas, and oil, along with land use change." The excessive amounts of carbon the ocean must now absorb is creating carbonic acid, which in turn forms bicarbonate, reducing the amount of carbonate in the ocean. This inhibits foundational species, including coral, oysters, lobsters, and even some plankton from building their shells. Oysters in the Pacific Northwest are already dying out,

threatening a multimillion-dollar industry. Around the world, ocean acidification is altering and threatening the very basis of our entire marine food web.

Habitat destruction – The primary causes of habitat destruction on land and in the ocean are human-related. On land, unsustainable development, dredging, deforestation, wetland destruction, and damming practices impact the natural flow of fresh water into marine areas creating conditions that destroy ocean habitats. Destructive fishing practices including bottom trawling, dynamite fishing, and poison fishing decimate ocean habitats for critical species.

Warming sea temperatures – In addition to being the planet’s largest carbon sink, the ocean is also a heat sink. According to NOAA, “More than 90 percent of the excess heat trapped in the Earth system due to human-caused global warming has been absorbed by the oceans.” Increasing ocean temperatures affect weather patterns, resulting in stronger storms, negatively impacting both ocean health and humankind. To put things in perspective, NOAA reported that in 2021 in the United States alone, 20 extreme weather events resulted in 688 deaths and \$145 billion in damages.

III. Ocean Solutions

The environmental challenges impacting our ocean can be overwhelming, even paralyzing. Increasing awareness, human ingenuity, and nature’s resilience can work together to restore the health of the ocean and preserve it for future generations. Some solutions such as cutting greenhouse gas emissions and reducing our dependence on plastics are well documented and are part of policy discussions and public discourse. In this section we outline other effective solutions less widely known.

Building Marine Sanctuaries – Marine Protected Areas (MPAs) are highly regulated areas in our ocean meant to protect certain critical resources. In MPAs destructive and extractive activities such as fishing or mining can take place are prohibited or strictly limited and monitored. MPAs are proven and effective tools at rebuilding species abundance and diversity while restoring marine life. A global review of impacts of MPAs on fish found that fish biomass(weight) increased by 446 percent, fish populations were denser by 166 percent, species size increased by 26 percent, and there were 21 percent more types of fish present (Ocean Unit 2020). MPAs also aid in the protection of coastal habitats, such as mangroves and coral reefs that prevent coastal erosion and mitigate the impacts of natural disasters.

Preventing and Recovering from Overfishing – The ocean benefits by supporting smart, practical fish policies, such as the Magnuson-Stevens Fishery Conservation and Management Act in the United States. This act is designed to prevent overfishing,

rebuild fish stocks, increase long-term economic and social benefits, and ensure a safe and sustainable supply of seafood. Stopping subsidies to industrial fishing operations, prohibiting inefficient or destructive fishing practices, and implementing traceability standards on imports would all have major impacts on ocean wildlife abundance and diversity.

Restoring and Conserving Coastal Habitats - Healthy coastlines produce at least as much food per acre as farmland. Tidal marshes, wetlands, seagrass beds, sand dunes, and mangrove forests are nature's defense against damage from wind, waves, and flooding. These natural barriers also help to prevent outbreaks from toxic microbes that cause massive fish kills and illness in humans that come into contact with the water. Healthy coastal ecosystems in the forms of mangroves, tidal marshes, and sea grass capture carbon from the atmosphere, also known as blue carbon.

IV. Youth and the Environment

From lobbying local lawmakers to support the establishment of Marine Protected Areas to organizing communities to restore and conserve coastal habitats, youth have the ability to create a groundswell of awareness and action that often eludes lawmakers and even world leaders. The only way to build lasting change is from the ground up. Youth have the ability to influence not only their own behavior and the behavior of their peers, but also the minds and hearts of parents, teachers, government representatives, community leaders, and business leaders.

Youth-led environmental advocacy has grown over the past decade and so has its influence. According to the United Nations Joint Framework Initiative on Children, Youth, and Climate Change, "Youth constitute the majority of the population in many countries and have an increasingly strong social and environmental awareness, which has the power to transform our societies towards a low-carbon and climate resilient future."

In 2009, the UNFCCC extended a constituency status to admitted youth NGOs, allowing them to receive official information, participate in meetings, request speaking slots, and receive logistical support at UNFCCC conferences.

It's not surprising that increasingly we see youth advocacy capturing headlines. During COP26, for example, more than 100,000 young people marched in Glasgow to demand more aggressive action from the world's leaders. Time magazine Person of the Year 19-year-old Greta Thunberg is a leading voice in the fight to prioritize and change climate policy. She routinely takes world leaders to task over climate inaction.

The Ocean Project’s research found that “Young people (aged 12-17) know and care more about ocean and other environmental issues, and they are more willing to act than adults; furthermore, they influence the opinions of adults, who tend to view their children as better informed on conservation issues.”

V. EarthEcho International

The key to effective youth engagement is realizing that young people aren’t just the hands and feet of the environmental movement, to be told what to do by adults. They truly are the hearts and minds, to lead us, because when they do then remarkable things can happen. Tufts Tisch College Center for Information & Research on Civic Learning and Engagement noted that, “Sustainable youth engagement can come when communities create more support for youth voices to ensure that community-decision-making is informed by a wide range of youth—especially those directly impacted by community change.”

EarthEcho International is a nonprofit 501c3 organization founded in 2005 by siblings Philippe and Alexandra Cousteau in honor of their father Philippe Cousteau Sr., son of the legendary explorer Jacques-Yves Cousteau. EarthEcho collaborates with youth around the world to provide knowledge and develop tools that drive meaningful environmental action to protect and restore our ocean planet. Reaching more than 2 million people in 146 countries, we support the next generation to become environmental leaders who will transform the future.

Our core programs are designed as a path of action for youth to become leaders and change the world. We focus our efforts in the following areas:

- **Fostering Leadership** - We encourage and facilitate youth engagement in environmental restoration and conservation projects across the globe that are grounded in the authentic needs of their local communities. By providing professional learning opportunities for youth leaders, they build the skills necessary to grow the environmental movement.
- **Mobilizing Communities** - We convene diverse stakeholders—young leaders, educators, corporations, nonprofits, governments, etc.—to collaborate and advocate for meaningful ways to protect and restore our ocean planet.
- **Educating Students and Training Teachers** - We create unique environmental content for classrooms focused on complex environmental. We provide professional development and funding opportunities for teachers to implement experiential and adventure learning in their classrooms. EarthEcho leverages the power of storytelling to educate youth about environmental advocacy and action.

VI. Examples of Youth in Action

While we all are awed by how Greta Thunberg has utilized her voice in the fight to save our planet, we don't need a handful of perfect ocean conservation heroes; we need millions of young people activating to save our oceans *now*, in whatever way they can, wherever they are. EarthEcho provides a platform for those millions of young people to get started. The following are specific examples.

EarthEcho Youth Leadership Council Advocacy in Support of Marine Protected Areas

In August 2020, EarthEcho's Youth Leadership Council launched OceanEcho 30x30 to increase youth voice in support of the protection of 30% of the ocean by 2030. A key pillar of this work focused on policy and advocacy efforts to support and expand marine protected areas in the U.S. and worldwide. One early priority for this work included a focus on the need to restore protections for the NE Canyons and Seamounts Marine National Monument in the United States. After participating in advocacy and communication trainings offered at our annual Youth Leadership Summit, EarthEcho youth leaders joined partners to speak about this issue during meetings with Biden Administration officials, took to social media and published Op-Eds to amplify support for the monument, and led educational events across the country highlighting the importance of marine protected areas. In September 2021, the hard work of a diverse coalition of organizations and advocates, including these youth leaders, paid off, as President Biden restored full protection for the first U.S. Marine National Monument in the Atlantic.

EarthEcho Water Challenge Ambassadors

Young leaders have a critical role to play as leaders in marine education and conservation at an early age, influencing their peers, families, and communities to join them in taking action. Through the EarthEcho Water Challenge Ambassador program, EarthEcho has equipped over 100 youth leaders with the training and resources to become community scientists, connecting to their local waterways through water quality monitoring. With support and guidance from EarthEcho, Ambassadors have built on these initial experiences to lead impactful watershed education events, engaging over 6,000 youth and community members in learning more about water quality, conservation, and ocean health/restoration.

Brigitta Gunawan

To mobilize public support for the 30x30 target in Indonesia, Brigitta Gunawan took action through #30x30Indonesia – a social media initiative aiming to collect voices in support of 30x30 as both a national and global goal. In order to engage with different communities across the country, she worked with athletes and students from over 10

schools through virtual ocean literacy events, involving students from junior school all the way to high school. This has reached more than 1,000 people in just 3 months.

She also hosted a [webinar called Inspiring the Youth to Protect Our Ocean](#), reaching more than 100 participants from 13 countries across the world. Speakers from the Coral Triangle Center and ASEAN Youth Organization's AYO Enviro, collectively educated the attendees about the importance of ocean protection.

Currently, Brigitta has shifted to the distribution of free reusable face masks with a 30x30 Indonesia message. The masks are adorned with a traditional Indonesian print and have reached as far as the U.S. State Department where they are in the process of purchasing their own masks to wear to the OurOcean conference in Palau later this year.

D'amy Steward

For D'amy Steward, serving as a member of EarthEcho's inaugural Youth Leadership Council (YLC) opened more doors than she could have ever imagined. While on the YLC, she attended and participated in several conferences ranging from ocean conservation to policy. These opportunities allowed her to network and represent the YLC at levels to which she believes she would not have otherwise been exposed. As an alumna, EarthEcho continues to facilitate opportunities for D'amy and her peers by encouraging local involvement with partners and participation in virtual conferences. As she says, "The YLC afforded me a platform to learn, participate, and make difference. It has proven to be a springboard to an area of ecological study that set the course of my life."

Gloria Li

After serving for three years on EarthEcho's Youth Leadership Council, Gloria Li worked for EarthEcho for one year as the YLC Coordinator. The experience provided some of her first and, as she describes them, most formative professional development opportunities – from doing live interviews to leading water monitoring workshops and attending conferences. Those experiences informed her subsequent journey into energy policy, and allowed her to navigate the professional world in DC with more ease during her recent move to the DC area for graduate school and an internship with the White House Council on Environmental Quality.

Dyson Chee

During Dyson Chee's tenure as an EarthEcho Water Challenge Ambassador, he conducted frequent testing of his local beach, leading to a greater appreciation of the importance of youth engagement in protecting our natural resources. He cites his experience as the launching point to becoming more involved as an activist in his local community. Currently, his home—the Hawaiian Island of O'ahu—is experiencing a

massive crisis, where leaking U.S. Naval fuel tanks have contaminated the drinking water of 93,000 people. "My time as an Ambassador, among many other amazing opportunities, has empowered me to take action on this issue and to keep up the fight for clean water. To put it briefly, being an Ambassador helped me to truly understand what the Native Hawaiians have known for centuries: 'Ola I Ka Wai (*Water Is Life*)'."