

**EARTHECHO**  
INTERNATIONAL

**#OurEcho**  
Action Guide:

PLANT A SOLUTION FOR  
SHELL SHOCKED OCEANS

EARTHECHO.ORG

## about taking action

In the United States, we utilize huge amounts of energy each day to perform even the smallest tasks. Much of that energy comes from burning fossil fuels. This type of traditional energy production creates enormous amounts of carbon emissions as a byproduct. Where do those emissions end up? In our atmosphere and oceans.

Oceans have long been a carbon sink, collecting and absorbing half the carbon we have put in the atmosphere since the Industrial Revolution began in the 18th century. Is this a problem? Yes. Carbon dioxide, released from the burning of fossil fuels, is an acid gas. This simply means that carbon dioxide, when mixed with water, produces a more acidic solution. When oceans become more acidic, animals that create shells to survive—such as zooplankton, corals, and oysters—struggle to produce them, their larvae are less abundant, and marine food webs break down. If ocean ecosystems collapse, billions of people who rely on seafood will require alternatives or they will starve, causing mass migrations, conflict, and further stress on our world's limited resources.

As I meet people and hear stories from across the world about conservation and protection of the world's natural resources, one thing has become abundantly clear: youth are (and should be) leading the charge for change. This [#OurEcho Action Guide](#) uses materials from [EarthEcho Expedition: Shell Shocked](#) to prepare you to make change in your own home, school, or community. Whether you organize a tree-planting event to mitigate ocean acidification or create a different type of project, be sure to let us know by using [#OurEcho](#) and share your story in our [#OurEcho](#) space online so we can show that world that young people ARE the change they wish to see in the world.



## check it out

Ocean acidification (OA) is what has been described as a “wicked” global issue, meaning that it is a problem that may be difficult or impossible to solve. The barriers to solving a “wicked” problems may include:

- incomplete or contradicting knowledge about the problem;
- too many decision makers involved in the resolution;
- overwhelmingly expensive potential solutions ; or
- the interconnected nature of these problems with other global issues (think climate change, sea level rise, and so on).

In [EarthEcho Expedition: Shell Shocked](#), Philippe Cousteau and his team traveled to the Pacific Northwest to understand both why OA is described as a wicked global issue, and also how people are working on solutions. Scientists and policymakers agree that there are some strategies that can actually mitigate—or make less serious—the impacts of ocean acidification, while other solutions seek to help people and ecosystems adapt—or become more accustomed to lower pH. From scientists working to mitigate the impact of ocean acidification by restoring native oyster populations to fisherman adapting to the changing animal populations, solutions are out there. And EarthEcho is on a mission to uncover them.

Through [#OurEcho](#), we put the tools of action in the hands of youth across the world. In this Action Guide, you can gather information and prepare to take action to mitigate the impacts of ocean acidification in your own community. While we outline a tree planting event as a way to take action, you’ll find stories of other projects you can do to raise awareness, add to the global scientific data, and advocate for “a world where every single child can breathe fresh air, drink clean water, and walk on green grass under a blue sky” (This is a quote from Philippe Cousteau, Sr., whose beliefs serve as our organization’s vision to this day).

While resources like [EarthEcho Expedition: Shell Shocked](#) are a great place to start, community action requires more than just knowledge. The EarthEcho Expeditions team strives to gather as much information as possible on an issue so that you can understand its impacts and take action. But we know that big environmental challenges affect different communities differently. Before deciding exactly how you want to take action to mitigate OA in your community, here are lots of different ways to check it out!





## Media

How are our oceans becoming more acidic? What's causing this problem? How are people dependent on the sea adapting?

[Shell Shocked: Not Just Chemistry](#)



From the things you can barely see to animals that are hard to miss, OA is a complex challenge that scientists are still learning about.

[Shell Shocked: Saving Shellfish](#)



Ocean health is complex, and the first step in mitigating OA is to have a global understanding of pH across the world. The Wendy Schmidt Ocean Health XPRIZE is a multi-million dollar, global competition that brings together everyone from surfers to oceanographers, from high school students to oil and gas industry scientists, in a collaborative effort to develop tools to measure pH everywhere in our oceans.

[Shell Shocked: Engineering Solutions](#)

## Interview

An interview can be a great tool to gain more in-depth knowledge about a “wicked” issue like ocean acidification. Interviews are generally conducted with experts or with persons directly involved with an issue or its solution. Interviews, whether done in-person or virtually, are an interactive way for you to ask questions and get clarification. Be sure to develop your questions ahead of time and take detailed notes that you can refer to later. People you may want to speak with:

- [Ocean Acidification experts](#) with the National Oceanic and Atmospheric Administration
- Your local [Waterkeeper](#)
- Local fishermen or aquaculture professionals
- Tourism professionals that work daily in and around coastal areas

## Survey

A survey helps you find out what people around you know and don't know, what they think, and what they would like to see happen. What you ask in a survey may help you to quickly determine people's concerns about ocean acidification (if any). What do people know about ocean acidification, how it relates to carbon emissions, and how their everyday actions may be contributing to the decline of ocean ecosystems?

Don't forget:

- You may be able to find an existing survey instrument. (What LUCK!)
- You can gather more information with technology-free tools like [Survey Monkey](#) or [Facebook's Survey App](#).
- Regardless of the target audience, be sure that the survey attempts to discover the diverse views within the community.

## Observation/Experimentation

Time to get up and get moving. Through observation and experimentation, you will take a look at what is all around you with new eyes. Be certain that what you're observing is measurable.

Often, checking out an issue using observation/experimentation as a method involves using audit tools, such as EarthEcho's [You Have The Power Action Guide](#). Environmental audits like the energy audit in this Action Guide will assist you in organizing usable data about your home, school, neighborhood, or greater community. Then you will be ready to develop a plan to take action and create a measurable change in YOUR community!

## get ready

So you're motivated and ready to do something about acidifying oceans!

Just remember that solutions start with YOU...though with a challenge as far-reaching as OA and related carbon emissions issues, it is likely that others have been laying groundwork. To make sure that you are building on the hard work that others have done or may be doing, spend a little time connecting to people who share your passion for a sustainable future.

### Who cares?

The first thing you need to know when taking any kind of community action is:

Who has the power to make policies and/or change people's daily practices?

Find out:

- Who is responsible for setting public and private policies around carbon emissions-related issues? Who creates those policies AND who enforces them?
- Who is responsible for setting public and private policies around mitigating ocean acidification? Who creates those policies AND who enforces them?
- What other people in your community might be involved in decisions regarding ocean acidification mitigation and adaptation strategies?
- Are there local advocacy groups working to mitigate carbon emissions or impacts of ocean acidification?
- Are there groups or individuals in your community that are disproportionately impacted by the effects of ocean acidification (e.g. subsistence fishing communities, tourist industry, etc.)

### Making it happen.

No free rides.

Often community action projects or campaigns require some materials or funds to get started. There are a variety of ways to raise money, but you must first be able to effectively communicate your ideas. Crafting an elevator speech is a great way to do—that so that no matter where you are or who you are talking with, you are **READY** to ask for help!

## INSTRUCTIONS FOR ELEVATOR SPEECH

*Imagine you step into an elevator and the president of your country is there and says, “What’s on your mind?” At most, you have about 7 floors that you will be traveling on the elevator together. That means about 12 seconds and 20 words per floor to tell him or her your important information. That’s your “elevator speech.” Be prepared: Know your key points— what you care about, what needs to happen, what you will do, and what others can do. Use short sentences that convey vivid images. Make solid eye contact. Mean what you say and say what you mean. Always tell who you are, the organization or school you represent, mention this is part of the EarthEcho International’s Expeditions Program, and always have an “ask” at the end.*

## PHILIPPE COUSTEAU’S ELEVATOR SPEECH

**1ST FLOOR:** Did you know water is the most important substance on the planet?

**2ND FLOOR:** Water connects every being to one another—from drinking to energy production.

**3RD FLOOR:** Water is becoming the cause of the greatest crises of our century.

**4TH FLOOR:** Our organization, EarthEcho International, launched EarthEcho Expeditions to involve students in protecting our most important resource.

**5TH FLOOR:** Youth are mitigating the impacts of using the ocean as a long-term carbon sink by planting native trees and blue carbon projects.

**6TH FLOOR:** Our everyday choices in our homes, schools, and businesses can add up to a significant impact.

**7TH FLOOR:** Are you ready to help? Here’s what you can do... (Hint: The ASK! Always have an idea about how the person you’re talking to can get involved.)

## Plan for Action

Every action starts with a plan.

Equipped with a better understanding of ocean acidification, you are ready to take action in your community to help mitigate this global challenge. Be sure to begin with an action plan that includes breaking down your strategy, including who will help you and what outcomes you expect to achieve. You should always be flexible in your plan, but writing out your goals and developing tasks to achieve those goals will ensure that you see indicators of success... even if you meet obstacles along the way.

**Project name:** \_\_\_\_\_

**Need**—Why this plan is needed:

**Purpose**—How this plan will help:

**Participation**—Who will help and what they will do:

Friends:

Other youth:

Policymakers:

Community organizations or groups:

Other supporters:

**Outcomes**—What we expect to happen as a result of our work:

**How we will check outcomes**—What evidence we will collect and how we will use it:

**Resources**—What we need to get the job done, such as supplies:



## do something

Now it's time and you're ready to go. There are numerous ways that you can take action to mitigate the far-reaching effects of long-term carbon pollution and ocean acidification. While none of these solutions will solve this "wicked" problem, everything we do makes a difference. If everyone does something, we can overcome the barriers to solving this "wicked" challenge.

### Direct Action

Sometimes you just want to SOLVE the problem. With a challenge as big and complex as ocean acidification, it's difficult to know how to get started. Taking direct action by planting trees has numerous benefits and can be lots of fun!

### Tree planting event

Planting trees does much more good for our planet than just mitigating carbon dioxide emissions. Trees can act as a riparian buffer, help prevent erosion, shade outdoor areas or buildings, provide habitat, and beautify your community.

As you begin to plan your tree planting event, here is a list of things that you should consider

- What other problems can the trees solve?
  - Riparian buffer? Is there a nearby stream or river that could use additional trees along its banks? You can help reinforce the stream bank, increase habitat and diversity, and filter and buffer water.
  - Shading? Can you place trees near your home, school, or office building in a way that would provide shade in the summer and a buffer against winter winds? This may help to decrease your heating and cooling costs.
  - Erosion prevention? Are there hills in your community that could benefit from trees and their root structure to help prevent erosion?
- What types of trees are native to the area? Native trees will require less maintenance over time, as they are well adapted for your climate and soil type.

The Arbor Day Foundation's [website](#) has many great resources to help you pick the right species of tree for your planting. We recommend exploring their "[Tree Wizard](#)," which takes into account location, soil type, and space available.

Once you have determined the location and tree type for your planting, you will need to set a date and gather supplies. Working with a local expert or a local nursery is a great way to ensure that all necessary supplies are available to be delivered on time. Are there organizations in your community that would be willing to donate trees? Are volunteers able to bring their own shovels or gloves? While planning, consider the following factors:

- If you are in a public space, what permits do you need? This could include both permits for the physical planting of trees and holding an event.
- How many volunteers will you need for the planting? This will depend on how many trees you are planting and how quickly you hope to finish.
- Where will supplies come from? Supplies needed include: trees, shovels, gardening gloves (optional), a water source to water newly planted trees, and scissors or box/wire cutters to remove trees from containers.
- Will you need to provide drinking water or food for your volunteers?
- Are there facilities available for restrooms, shade, or resting during the planting?
- Who will organize and check in volunteers on the day of the event?
- Maintenance: How will tree upkeep be handled? Who will be responsible for watering and checking on the trees, especially during the first few months or years?

The Arbor Day Foundation has tips for planting different types of trees--bare root, containerized, or burlapped. Be sure to consult these before the day of your event.

## Indirect Action



### Blue Carbon offsets

While planting trees is a great way to offset the CO<sub>2</sub> and other greenhouse gases that we release into our atmosphere on a daily basis, there are also other ways to balance and offset that impact. In today's world, it is nearly impossible to completely eliminate your carbon footprint. Raising funds to offset either your own or your school's or organization's carbon footprint with [SeaGrass Grow](#) helps to mitigate ocean acidification AND restore critical marine habitats. Learn more about how this program works and calculate your personal footprint.

<https://www.oceanfdn.org/calculator>



[Play Video](#)

## **Gas Pump Labeling**

The science tells us that our burning of fossil fuels has changed the basic chemistry of our planet. And we know we are running out of time to act. Affixing warning labels to gas pumps is a proactive and novel approach to helping communities understand this invisible global challenge. The warning labels draw attention to this everyday action of utilizing petroleum products in our transportation. They disrupt the status quo and stimulate demand for alternatives. It is a simple yet powerful way to shake us out of our sense of complacency and help move communities in a more sustainable direction. Learn more about the [labels](#), the efficacy, and the steps you need to take in order to require pump labels in your community.

## **Advocacy**



[Play Video](#)

## **Work on policy reform**

Leadership in public policy is vital to solving global challenges. Learn more about Aji, Adonis, Gabe, and the youth from the Seattle chapter of [Plant for the Planet](#). These young people took on Washington's Department of Ecology in court, demanding that it take stronger action around carbon emissions.

## Research



[Play Video](#)

### Participate in Citizen Science

Through internships, work-study programs, and even competition award programs, high school students can establish partnerships with esteemed research facilities like NOAA's [Pacific Marine Environmental Laboratory](#) and [The XPRIZE Foundation](#).

Learn more about young people taking action to mitigate ocean acidification by working as citizen scientists, conducting critical research on this complex issue.



[Play Video](#)

## share your story of action as part of **#OurEcho**

What a story! You have put your plan into action and seen the results.

The most effective community action projects and campaigns take their stories public, so be sure to share what you have accomplished using **#OurEcho**.



As you tell your story, ask yourself:

Who is your audience?

What do you most want to tell them about what you learned along the way?

What do you most want to tell them about the community action that you've begun?

Are there any partners you might like to recognize?

What results were you expecting?

Did you change the world? How?

Be sure to share your story of youth-lead environmental action at [via EarthEcho's reporting form](#) and learn more about what others are doing on the EarthEcho [website](#).