



KCI

Our Beautiful Planet

Community Activity and Discussion Guide

The Future of Shellfish

 **KIKIM MEDIA**

WELCOME

We hope this discussion guide sparks conversation surrounding climate change, including the problems we face and the solutions we might find.

The collection of **Our Beautiful Planet** videos are a beacon of hope in the face of a real and catastrophic issue. We hope that this discussion guide for **The Future of Shellfish** will educate you on solutions and inspire curiosity and grassroots action. But to do this, we need to encourage more conversations regarding climate change, which is why we've created this guide.

This is a global problem, but by working together to save the places we love... WE can be the solution.



We Hope These Films Inspire You to:

- **Learn More**
- **Find Creative Solutions**
- **Take Action**

A letter from KCI

As we launch into this new decade, we face more severe weather, wildfires, warming oceans, and changing habitats. The science behind climate change is indisputable and is no longer a down-the-line consequence or something that is only affecting others in a place far away. We know from scientists that this decade is paramount in addressing climate change before it is too late. We are facing a crisis, not only in our country, but globally. Yet, we struggle to talk about what is happening. We feel powerless to make the changes necessary to alter our trajectory.

How do we as communities figure out how to save what we love and what we value before it is too late?

At the Kennebunkport Climate Initiative (KCI), we know that by engaging communities locally and connecting them with what they love and value, we can start a movement. For an effective climate movement, we believe that all voices are necessary and powerful, especially youth. KCI encourages youth to lead their communities to act locally and think globally.

We want to empower individuals to use their circles of influence to create collective action to solve climate change. By engaging all voices, grassroots movements can grow, influencing others, and shifting policy. Throughout our history, our nation has overcome insurmountable obstacles through grassroots movements. Our history tells us that when a few are passionate and live by their beliefs, they can start a movement that creates real change.

Intended to engage people in climate change science without leaving them hopeless, [Our Beautiful Planet](#) is a collection of short films featuring scientists. These scientists discuss their research and possible solutions while communicating the impact of climate change in our communities. Our discussion guide provides the structure and the opportunity for discussions and activities around these film topics.

Our hope is for community members, students, and business and conservation leaders to discover their community places at risk and transition that small-scale understanding to a larger, global perspective. Communities will find solutions by listening, engaging, and collaborating to combat climate change in their town while at the same time seeing how to make an impact globally.

The more effective we are at communicating both the science and social aspects of mitigating climate change, the faster we can create powerful policies to combat the ticking clock.

We hope that these discussions and films will inspire the next generation of climate scientists, climate solutions, and community adaptations that create a better future for everyone.

By bonding together, we can decide what that future looks like!

Leia Lowery KCI Director of Programs & Outreach



A letter from Kikim Media

From roaming dust storms to underwater kelp farms...from mosquito habitats to the diets of cows...[Our Beautiful Planet](#) is a series of films that takes viewers on a journey with a diverse group of scientists researching unique windows into how we can understand and combat climate change.

Today, all of us on this planet are confronting the sobering consequences of climate change. Bigger hurricanes and forest fires. Radical shifts in weather and temperature that can and will disrupt our ability to grow food. Rising sea levels that threaten—within just a few decades—to make the world’s coastal cities uninhabitable.

But we’re far from helpless. We have a powerful tool at our disposal that can help us to understand climate change, find ways to adapt to it, and perhaps even slow it down.

That tool is science.

[Our Beautiful Planet](#) is our new series of short climate films that are constructed in a style designed to appeal to a broad general audience. At a time when we so badly need it, the public’s relationship with science is seriously flawed. Many people flat-out distrust science, or get confused and bogged down in misinformation. Part of the problem is the difficulty that scientists have in communicating with the public. [Our Beautiful Planet](#) helps to cut through this confusion by presenting research and scientific solutions to climate change in an accessible way. This is done by using less jargon and presenting interesting stories about scientists who are ordinary people, their passions for science, and the research they are doing which creates opportunities for striking back against climate change.

Kikim Media is partnering on [Our Beautiful Planet](#) with the Kennebunkport Climate Initiative (KCI) and the National Science Teaching Association (NSTA), which has produced supporting materials that will help teachers use these films in classrooms across the country. Not only is [Our Beautiful Planet](#) intended to help improve American science education by exposing students to what it’s like to actually do science, we also hope it will inspire a future generation to consider their own scientific careers.

[Our Beautiful Planet](#) doesn’t simply present the challenges of climate change as all doom and gloom. Our goal is to excite viewers through the various solutions that scientists are investigating across a myriad of fields of study. No one person, no one answer will stop climate change in its tracks. The solution will be a combined effort, and we hope that our film series will galvanize others to do their part to keep our planet beautiful.

With hope,

Kiki Kapany **Producer**

Edward Gray **Writer and Director**

Alyn Divine **Co Producer**

David Evans **Former Executive Director of NSTA**

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How to Use the Guide

This discussion guide initiates needed conversations and opens the door for brainstorming necessary actions to move forward. Learning about new challenges and possible solutions helps move people toward climate action. By encouraging community conversations, we inspire future scientists, actionable changes, and create the opportunity for change.

With every discussion, we hope to build a groundswell of knowledge and ideas critical to creating a grassroots movement that can influence the larger region, nation, and world.

This guide is set up to help facilitate community conversations about Our Beautiful Planet.

In this guide you will find:

- Suggestions on how to use the videos
- Suggestions on identifying and engaging stakeholders
- Strategies to have meaningful conversations
- A variety of questions to inspire conversations from multiple perspectives
- Activities and exercises to inspire deeper conversations
- Information about how to run a fishbowl (for a larger audience)
- Follow-up activities to spark action



About The Series

Our Beautiful Planet is a fascinating new series highlighting the work that climate scientists around the country are doing to solve some of the world's most pressing issues. These dedicated scientists are seeking to better understand and plan for the realities of our changing climate. Using cutting-edge technology and innovative problem solving, their answers are sometimes found in rather surprising and unexpected places.

Our series brings viewers along for some of the most important field work being done today, taking the science out of the classroom and into the real world. These compelling stories will not only teach our viewers crucial scientific principles, but we also hope to inspire them to use science to examine the issues affecting their own communities.

About the Films

The Future of Shellfish

Markus Frederich, Professor of Marine Sciences at the University of New England, explores animal species "winners" and "losers" with climate change. Markus works and studies in the Gulf of Maine, where the temperatures are warming at an astonishingly fast pace. He also looks at the effects that it has on different shellfish. Sea creatures like the Green Crab, an invasive species on the Maine coast, are thriving in the warmer water. The American Lobster, a Maine native; and driver of Maine's economy, thrive in colder waters. What does this mean for the aquatic inhabitants of the Gulf of Maine? Who wins and who loses, as climate change continues to change the waters and the landscapes of our coastal communities?

Sea Change

Oceans are levels are rising, and we can see the effects now! Around the world, scientists are watching the Gulf of Maine. The Gulf of Maine is warming 3 times faster than the global average and 99% faster than any other body of water its size. As the water warms, its particles expand, amplifying the effects of sea-level rise. Scientists are trying to figure out why the Gulf of Maine is warming so fast. They want to spread the message that this is not just a problem for those on the Gulf of Maine, but a sign of a changed future for all of us! What can we learn from this scientist, and what can we do?

The Search Beneath the Sea

The Maine seacoast is an iconic hotspot, full of beautiful landscapes, crisp ocean views, and coastal fishing communities. However, off the shores, those beautiful landscapes and coastal communities are facing challenging changes. The Gulf of Maine is warming three times faster than the global average and 99% faster than any other body of water its size. To find out why Oceanographer Charles Tilburg and his students from the University of New England are embarking on a data collecting journey. They collect data about "heat content" and how greenhouse gases affect the oceans on a large scale. They hope that this data will answer questions and provide answers to what is happening to the Gulf of Maine, and the future changes it faces. Will they inspire solutions and future scientists to help mitigate and adapt to a changing Ocean?

The Superpowers of Seaweed

Our oceans are going through a historic change. As humans continue to burn fossil fuels, the oceans absorb one-third of the CO₂ we put in our atmosphere resulting in acidification. The more acidic ocean water puts many of our beloved marine animals, especially shellfish, at risk. Follow the journey of two scientists: Susie Arnold of The Island Institute and her colleague, Nichole Price of Bigelow Laboratory for Ocean Sciences, as they try to help coastal communities cope with the results of ocean acidification. Many coastal communities rely on the fishing industry for their livelihoods; these changes could greatly affect their way of life. Through science and research, can these two scientists work with each other and local communities to protect Maine's marine life with the help of an unlikely plant friend?

Climate Secrets of Cows

It may come as a surprise to you that one of the world's most loved agricultural animals, the cow, comes with a hefty environmental price tag. Cows and other ruminants release large amounts of methane into our atmosphere and at a greater rate than the world has ever seen before. Methane is 84 times more potent than CO₂! Ermias Kebreab, a Professor of Animal Science at the Davis Campus of the University of California, is trying to figure out how to reduce methane emissions from cows by changing their diet. Could an unlikely food from the sea change how they digest?

How to Facilitate

Ways to use the videos:

Our Beautiful Planet films educate about climate change issues and possible solutions. We hope that these films will start conversations about the changes facing communities right now; and educate others on how, as a community, people can prepare for, mitigate, and adapt to the future. While these films look at specific issues in unique locations, we hope the discussions will encourage people to connect them with the broader issue of climate change. We also hope it encourages viewers to think globally, act locally, and possibly inspire future pioneers in science and climate solutions. After all, climate change is a global problem, but we can all be a part of the solution.

Tips to Facilitate Productive Conversation

Climate change can be controversial. Just mentioning the words brings about different emotions for each individual. Explore the following resources to get a sense of how the nation and your community think and feel about climate change.

- Watch the film first and familiarize yourself with the information. With a better understanding, you will be able to facilitate better dialogue.
- At the beginning of the film, alerting people to the end goal and subsequent conversation, ensuring that discussions lead to the desired outcome.
- Communication about climate change is best when it uses local data, tells a story, and is rooted in place.
- Create an open atmosphere where all views are valued and heard.
- Identify different perspectives. It isn't about convincing people of your perspective, but rather about understanding multiple perspectives and finding sustainable solutions.
- Be a confident communicator and use an authentic voice, not abstract ideas.
- Encourage people to find common ground with whom they are talking.
- LISTEN, LISTEN, LISTEN- Most people want to feel heard. Feeling heard makes people less defensive and more open to conversation. (you can use the listening exercise before any discussion as a warm-up)
- Connection with each other is the key. Climate change ultimately is a human story; people identify with the world around them through the human experience, not only statistics.
- Speak only for yourself and do not try to speak for others, or in generalities.
- Climate Change is a heavy topic. Try to end with hope, try having people imagine what their community or the world might look like if we solve the climate crisis. What about their lives might be better? What part in the solution might they play?



Finding the Stakeholders

Stakeholders are people and/or organizations that have a vested interest in the topic you are discussing. Stakeholders are people who may be actively involved in the topic/project, or will be positively/negatively affected as a result of the topic.

Determine who might know about changes in the community over time. Also, consider who can affect, or will be affected by, climate change.

Some examples might be:

- Town Managers
- Town Planners
- Business owners
- People living in an affected area
- School administration or facilities managers
- People who have lived in the town for many years with a historical perspective
- Land Trusts or other environmental groups
- Youth environmental clubs or action groups
- Rotary
- Fire, Police, EMS, and other safety workers
- Electricity Companies
- Sustainable businesses
- People in the industry affected by the film

Creative Ideas to Prompt Discussion

These are some suggestions about ways to structure conversations about the movie. Choose prompts that best fit your audience, but encourage people to look at the topic from multiple perspectives.

Pre and Post-Film Questions to Spark Conversation

This is an opportunity for people to test what they have learned in comparison to what they previously believed. For some, the film will resonate with their predetermined thoughts, but for others, there may have been a lack of awareness or different information that could spark conversation.

1. (Before) List the effects of climate change the ocean and the species that inhabit it.
(After) What did you learn? What surprised you that you didn't know before?
2. (Before) Are there some species that benefit from climate change and are these "winners" helpful to us?
(After) What does Dr. Frederich mean by "winners" and "losers" of climate change? Is the American Lobster a "winner" or a "loser" in your opinion and why?
3. (Before) Do the effects of climate change on the ocean have a large impact on people? In what way?
(After) how can the rising temperatures of the ocean/Gulf of Maine have a human impact? What ways can humans adapt to the changes?

Facts from the Film with Starter Questions:

- Temperature is a key driver of biology affecting every living thing in the ocean.
- By 2050 scientists predict that the American Lobster population will decline drastically in the Gulf of Maine.
- There are conflicting conclusions about the effect of rising temperatures on lobster larvae. Some scientists have concluded that the warming temperatures harm the larvae, and some think that the warmer temperatures may protect the young lobsters in a critical stage.

What is your reaction to these facts that were in the film?

Do you feel most people know this information? What do you think would change if people understood this information?

Who should be a part of the discussion about the warming Gulf of Maine? What could these stakeholders add to research?

What is a climate change "winner" and "loser"? Do you agree with these terms?

What are possible solutions to dealing with the invasive or non-native climate change "winners"?

Why is the American Lobster important to the people of Maine?

Creative Ideas to Prompt Discussion

Gauge Understanding by Linking to the Big Picture

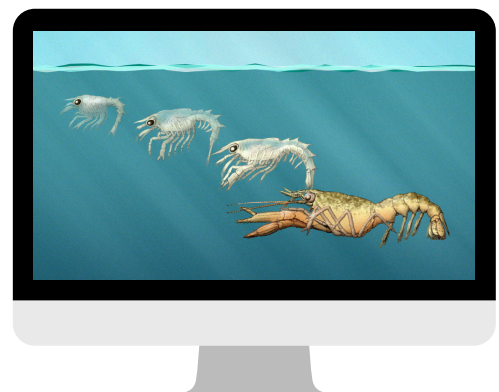
- The video discusses the problems around the invasive European Green Crab in the Gulf of Maine. Green crabs are a problem in other parts of the world as well. Why is that? Where are green crabs native? Where are they invasive?
- What are creative ways to deal with an invasive species like the green crab? Are there ways that people can use them to control their populations and restore the habitat?
- Why are lobsters so important in Maine? Is it more than just the income? What are the ramifications for people in Maine if this industry collapses?
- How do the American Lobster's northern migration and the green crab becoming more prolific affect the balance of the ecosystem in the Gulf of Maine?
- When thinking of this idea of "winners" and "losers" in climate change, what other organisms are being affected by the warming ocean? Are things like fungi, plants, and other forms of life in the ecosystem also being affected? What other "winners" and "losers" might there be?
- Is this only an issue in Maine? Who else in the world might be dealing with the ramifications of the warming ocean?
- If the Gulf of Maine is warming faster than 99% of bodies of water its size, how might we use it as a lab for how to mitigate and adapt to climate change? Are there similar issues looming for other areas of the world? Can we test solutions and adaptation ideas in the Gulf of Maine to help these other places?
- How might the warming ocean affect developing nations or otherwise vulnerable populations?



General Questions and Conversation Starters



- This film is important because _____.
- What is one thing that piqued your interest? Or what did you think was surprising?
- What, beyond the local impact of their research, are the possible ripple effects of Dr. Markus Frederich's work? How might these discoveries impact other climate change issues or other places? (three lenses, see page 13)
- How do you think green crabs got to the U.S.? If we cannot eradicate the green crab, what are some ways to balance the ecosystem to account for them?
- What effect do invasive species have on the ecology, economy, and sociocultural aspects of our communities?
- What is something you learned that you think more people should know? What would change if more people knew about this information?
- Could the loss of the American Lobster, or a drastic decrease in their population, be a game-changer for people? Would it only affect people in the Gulf of Maine region?
- What role do our news and media outlets play in communicating the climate crisis? Does this communication have a positive or negative effect, and what could they do to help us move towards solutions?
- It is said that there is no silver bullet to solve the climate crisis, but rather silver buckshot. What does this mean, and how does this film play a role?
- What solutions are there to combat the loss of biodiversity caused by climate change? What could work well in your community?
- Was Dr. Frederich's view on climate "winners" in the climate change battle hopeful to you? Do they provide a positive or negative outlook for the future?
- Who else should be included in this conversation? Who may be affected by this through their business or livelihood? What about their experiences bring value to the conversation? What about in your personal story?
- How can we get people who live inland to care about this issue? What information can we prove this is their problem too?
- We know about the science of climate change and have known about it for quite some time. Why have we not seen more movement towards sustainable solutions? What can we do differently to inspire change?



Activities

Activity 1: The 1:1 - Communication, Engagement, and Sense of Place

This activity is great for modeling good listening skills, creating a connection between people, and creating a personal connection to climate change through identifying personal special places.

Part 1 (pre-movie)

- a.) Hand out a small piece of paper to each person at the viewing and explain what they will be doing. Have a watch or a phone ready to be a timer.
- b.) Task: Each person should think of a place that they love. It can be anywhere - inside, outside, local, away. It doesn't matter, just think of a place that they love. Give people a couple of minutes to describe it or draw it on their paper. (It can be a drawing, bullet points, written description)
- c.) Have participants pair up with a person they do not know and designate person A and person B.
 1. 1 minute: person A has 1 minute to describe their place to person B when the timer starts. They are to talk for the whole 1 minute, but they have to stop when we tell them to stop. Person B may NOT talk. All person B may do is nod, they cannot add anything to the conversation.
 2. 30 Sec.: Now person B has 30 seconds to tell person A what they heard them say about their place.
 3. Repeat but reversing roles. This time person B is talking for 1 minute. They cannot reference person A's place in their own description.
- d.) Debrief with the participants: What did you notice? Was it hard to listen and not add your thoughts while the other person was talking? How did it feel to talk the whole time without interruptions?

On listening:

People have a desire to connect with others. Often we interrupt someone speaking with us to agree with them about what they are saying, but in doing so, we often take over the conversation. When discussing issues close to the heart, like the places we love or the environmental changes we see in our communities, it is important to actively listen to one another. Only add your voice when someone has completed their thought. By remembering how it felt to be heard and truly listened to, we can create meaningful dialogue about tough topics.

On our Places:

When everyone is thinking about a place they love, it unites them in that commonality. Though everyone has a different special place, they are finding common ground. This mutual understanding allows more empathy to enter the discussion when transitioning to the questions.

- e.) Next Question: How would it feel if this place was at risk? Or is your place at risk due to climate change?

Part 2 (post-movie)

- What was the problem being researched in the movie?
- What was the cause of the problem? Could that problem affect your special place?
- Were there similarities between the location in the film, and your special place?
- Are there collective actions that we can take as a group to help our community become more s

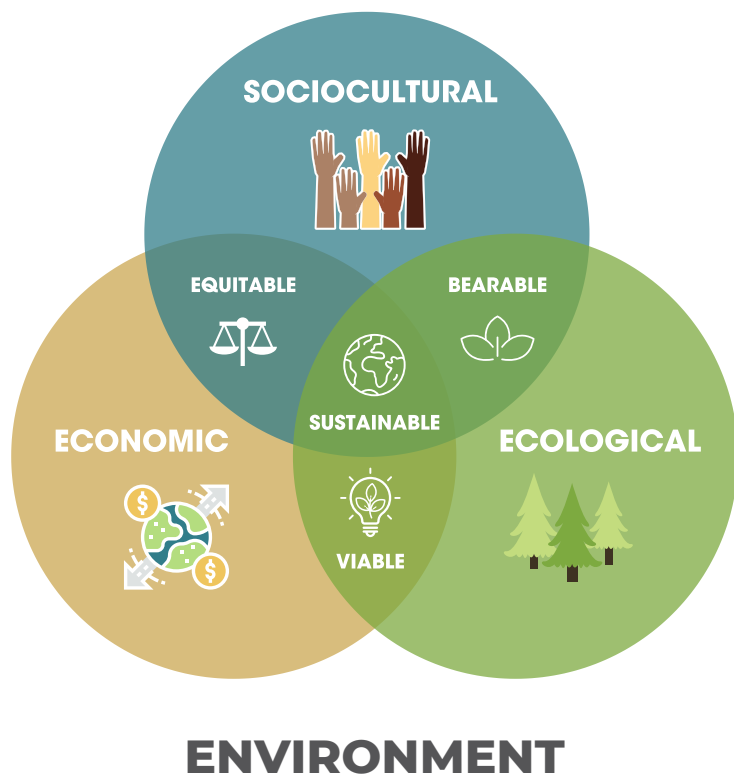
Activities

Activity 2: Bring it Home

As climate change continues to change our ocean, the fishing industry will have to evolve. One day the Lobster industry in Maine may be nearly non-existent like we have seen happen in New York, Connecticut, and Rhode Island.¹ That said, to only discuss the effect that the decline in the Lobster industry is having on Maine, and the people fishing them, would be remiss. There is a supply chain from ocean to table that will be affected that could likely affect those of us who may not live on the rocky shores of Maine; the rising temperatures are affecting many more organisms than just the American Lobster. Did you know that 10-12% of the global population depends on the Aquaculture and Fishing industry for their livelihood? Over 3 billion people worldwide rely on food from the oceans as a significant source of animal protein.²

However, with the warming trends, acidification, overfishing, and invasive species could have a drastic effect on that dependence.

Lead a discussion about the fishing industry and its effects on the environment and the economy- where does it touch our lives even if we are not a coastal community? How can sustainable fishing practices and mitigation to climate change be a win for many, even those who are inland? How does this topic affect your community directly or indirectly?



Activity 3: The 3 Lenses

Part 1: Set Up and View Film

Set up 3 tables with large sheets of paper at each table and pens.

Then, as a whole, watch the film. Have people list at least two stakeholder groups that are affected by this situation, and how. They don't have to agree with their statement or have a solution. Just have them start thinking about whom they believe can affect change or those who are affected by the situation.

Divide students into three groups, and assign them to a table - Every group will visit each of the three tables during part 2.

Part 2: Travel Through the Points of View

Each group will sit at their designated table for 5 minutes. Here, they will view the film through the lens associated with the table at which they are sitting. What are the positive effects of this lens and the negative? Each group must add at least one new item to the list at each table. It must be something new and can not be a repeat of what other groups have said.

Rotate until each group has visited all 3 three tables (lenses).

As a group, debrief. Ask each group to share the written items at their table. Discuss ocean acidification from the three lenses. You can also discuss Aquaculture and fisheries through the three lenses. What topics come up as possible disagreements or conflicts, and how might we overcome those to come to sustainable solutions?

¹ <https://www.climate.gov/news-features/climate-and/climate-lobsters>

² <http://ocean2016.org/sustainable-fisheries>

Activities

Question Suggestions for the 3 Lenses Perspective

- What, beyond the local impact of their research, are the possible ripple effects of Dr. Markus Frederick's work? How might his discoveries impact other climate change issues or other places?
- How do green crabs affect the ecosystem? What role does warming ocean waters play in those effects? What should we be considering when looking through each of the three lenses? (ecology, economy, and sociocultural)
- Why might there be resistance to change and resistance to address the carbon emissions that are largely responsible for the warming water from various groups, such as the fishing industry or coastal communities, if they know the effects of these things on their livelihood and ocean habitats?
- How might we communicate an effective message to groups represented by each of the three lenses?



Conversation

Climate change is a global issue that can sometimes feel so insurmountable it cripples people from taking action. People might ask themselves, "how can what I do personally make a difference to a world issue?" While this is valid, it is the wrong way to think about the issue.

Individual actions can lead to social mobilization, which is very effective. Think about a time when someone you respected in your circle of friends influenced you by something they were doing. That observation and acknowledgment can inspire action in you. We all have that ability within our own spheres of influence. What we choose to do can mobilize others around us. When this happens, and the action spreads from your sphere of influence to others and their friendship and influence groups, it becomes a grassroots social movement, and that can and does contribute to lowering greenhouse emissions on a larger scale.

These discussions and collaborations are the beginning of finding your way to be an influencer, normalizing climate-friendly behaviors and conversations, and making a difference in your community.

in Action

Individual Actions that influence:

***** We encourage engaging youth in your community through schools, clubs, or other organizations to join in these community actions. They are powerful change agents, enthusiastic participants, and the future of all our communities.**

Photojournalism Project: Take pictures within your community of places that are at risk or of things that show the problem climate change is creating. An example is a picture of a shore that used to be a full mussel bed and is now empty. Before and after photos can be extremely effective. If you can find a historical picture to juxtapose with a recent photograph of the same place, it can tell a powerful story. Host an online/in-person public forum or an art show once the photos are collected and curated. Invite feedback and discussion about the photographs and try to tap into how people feel about them. Also, find out what more they might want to learn regarding the subject.

Webinar: Invite three people to be on a panel, each representing one of the three lenses. Perhaps a town official, someone from the fishing industry, and a local land trust representative. Have an information session with questions for the panelists, then open to community questions. This is a great way to get information across through multiple perspectives, allowing each attendee to feel they see themselves in the problem and the solution!

Action Project to Address Invasive Species and Lower Lobster Populations: Encourage coastal homeowners to avoid using chemicals on their lawns as those chemicals runoff into the ocean and further harm the lobster population. Create information about invasive species in the area and how they get there, prompting people to wash their gear, clean their boats before and after entering the water, or not bring wood from away to burn, as all of these are ways invasive species travel. Pick a community-wide project that will spread awareness and lead to collective action.

Monitoring Project: Get involved with a citizen science monitoring project. Find universities or local organizations that are already monitoring the problem your community is facing and volunteer to be a part of the team that collects data. By participating in monitoring, you will learn more and have opportunities to engage others in meaningful conversation and action.

Make Videos or Social Media Posts: Social media platforms are an effective way to communicate to the public. Just be sure to offer solutions to go with the information about the problem.

Local Assessment Activities

How do we bring these crucial issues to our local landscape? It is easy to feel disconnected from a topic when an example is in a faraway place or doesn't seem relevant to our day-to-day lives. In order to be effective, it is important to feel empowered by working together to save the places we love and live in. It is vital that we provide opportunities for all members of our community to thrive and live in environmentally sound places.

Think globally - Act Locally

Activity 1: Fishbowl Conversation

Fishbowl conversations are a great way to elicit multiple points of view about a topic and allow stakeholders to be interviewed in a controlled and open way that makes them feel safe to share their opinions and thoughts.

1. Identify Stakeholders from different points of view, and invite them to a forum or to a group zoom call. (Ex: town manager, fire chief/police officer, business owner, retiree, land trust director, town planner, parent, someone from public works, etc...)

2. Have questions formulated prior to the forum. Make sure to give them to your speakers prior. TIP: take the time to formulate well thought out questions that will elicit the information you want to know, or get across.

3. If in person, seat the interviewees in front of the audience in a semicircle so each person can see everyone else. (If online pre-determine the order in which they will answer questions.)

4. Ask one question at a time, allowing a few minutes for each person to answer the question from their perspective before moving on to the next question. Move in the opposite direction for the next question and continue back and forth until all questions are done.

5. Leave time at the end for general discussion, or for your panel to ask questions of the audience. Many times this type of forum will open communications between community members and stakeholders creating a wonderful dialogue.

Activity 2: Community Mapping


Community mapping engages community members in conversation about their local landscape. Having community members look at a local map and see how climate change will affect the places they know and visit regularly, makes finding solutions more urgent. Jointly looking at a map of the community allows for open conversation and questions specific to people's needs and fears. Community mapping can empower advocacy on environmental issues, support management of access to land and natural resources, as well as educate on the economic considerations of any plan.

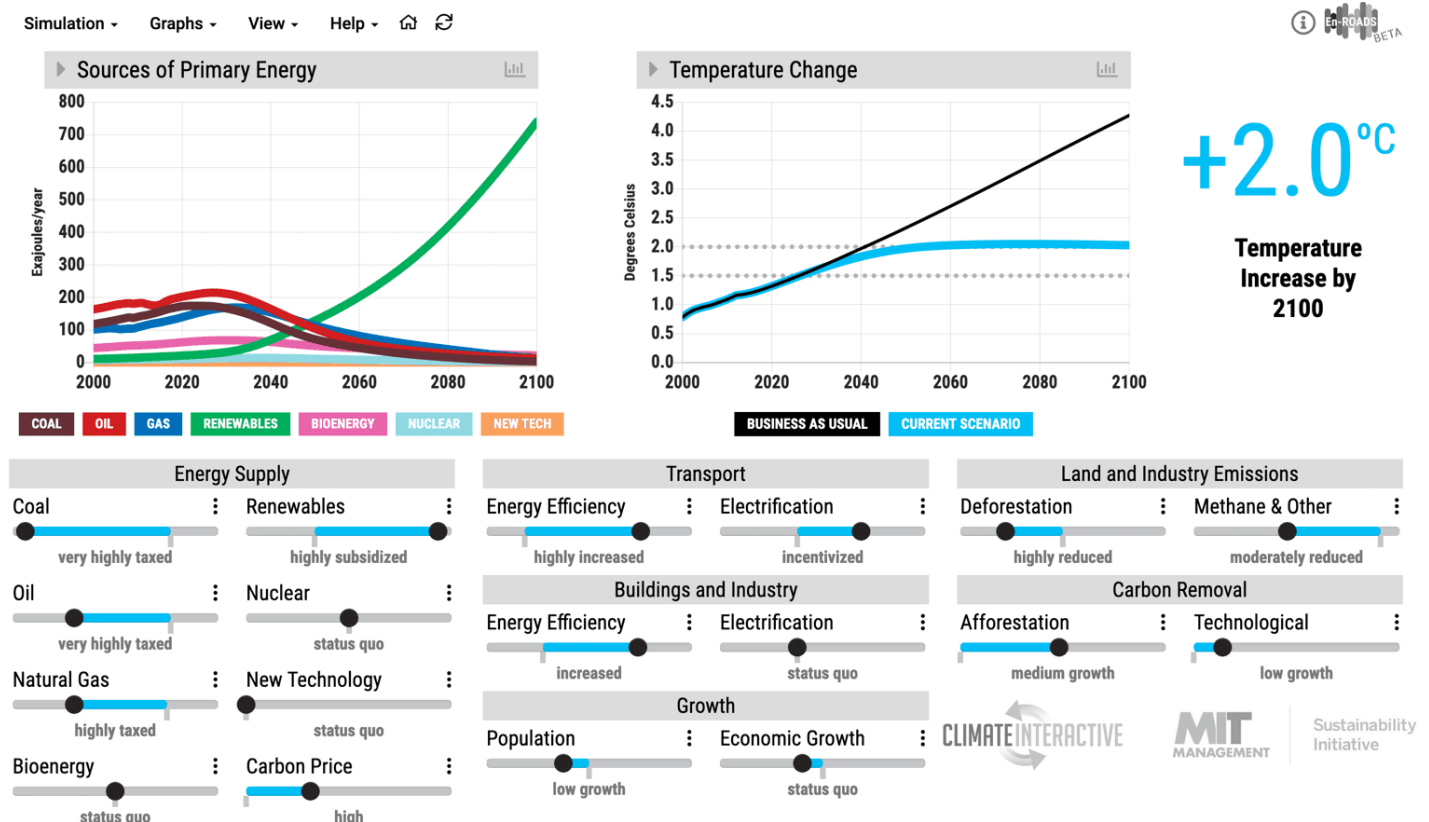
- Introduce community mapping and the role it plays in collaboration and community buy-in.
- Have a map of your town that is large enough for people to gather around at a table.
- Have people mark the places that are meaningful to them, places they love and want to protect.
- Next, make sure all the major assets to the town are marked and identified. (Main Streets, ocean, lake, rivers, forested areas, parks bridges, public works locations, etc...)
- Place sticky notes or circle places on the map that might be affected by climate change or affected by the issue addressed in the film. Make sure everyone has a chance to participate.
- Identify the places that are most at risk and the places that are options for solutions.
- Engage stakeholders with knowledge about the town and the current policies to give participants guidance on what solutions might be viable.
- Conclude with a few actions that individuals or the collective can take to save the places they love.

Local Assessment Activities

Activity 3: En-ROADS Simulation

En-ROADS is an online simulation for groups of people to investigate their solutions to climate change. Here is a [link](#) to the simulation. There, you will also find multiple resources to become more educated on the topic. This [link](#) will give you a 20-minute introductory video to En-ROADS. Here is a [link](#) to a two-page guide from KCI about the various levers. The goal of the simulation is to keep the temperature below 2°C or 3.6°F while maintaining a healthy economy and society. It is a great way to encourage people to look at climate change on a global scale but also bring it down to the local level.

- Separate into groups of 2-4 people and ask them to decide what they think the best solution would be to keep the temperature rise below 2°C or 3.6°F. (all must agree on just one action)
- Come back as together as a whole and try each group's scenario. How low did the group get the temperature?
- Engage in conversation about other solutions. Encourage people to look at the levers more deeply by clicking the three dots beside each lever which takes you to more information. You will see three icons:  the first allows you to see more graphs, and the "i" icon, gives you more information about the specific lever. The information button will include research on the topic, examples, and equity considerations. Reading this information is a great way to encourage further investigation into specific topic areas.
- Once you have gotten the temperature below 2°C, lead a discussion about what you learned. Are there solutions that your community could take on to lower emissions? Could you start community composting? Could you encourage an energy efficiency audit for governmental buildings? Could your town support community members to make their homes more energy-efficient saving them money and lowering emissions?



Examples of Actions, Resources, and More Information

Links to:

Policy, Mitigation, and Adaptation

The Ocean Foundation shows the research being done, the effects of climate change on biodiversity, policies, and proposed solutions.

<https://oceanfdn.org/ocean-and-climate-change/>

Laws and Regulations for Invasive Species like the green crab.

<https://www.fws.gov/invasives/laws.html>

This paper by Ocean-climate.org outlines international laws for Ocean and Climate.

<https://ocean-climate.org/wp-content/uploads/2020/01/13.-The-international-Law-for-OC-Fiches-S-2019-.pdf>

This link takes you to a map that will identify by state what has been passed for policy regarding climate change and carbon emissions.

<https://www.quorum.us/spreadsheet/external/lobEuXubunJZXIGtYyxm/>

Management and monitoring of Invasive Species by the Fish and Wildlife Service.

<https://www.fws.gov/invasives/stafftrainingmodule/assessing/monitoring.html>

Management plan for the European Green Crab management by the Fish and Wildlife Service.

<https://www.fws.gov/anstaskforce/Species%20plans/GreenCrabManagementPlan.pdf>

USDA take action against Invasive Species.

<https://www.invasivespeciesinfo.gov/take-action>

<https://www.aphis.usda.gov/aphis/resources/pests-diseases/hungry-pests/What-You-Can-Do>

St Joseph College trying to turn green crabs into a plus.

<https://www.sjcme.edu/highlights/how-invasive-species-turned-into-plus-for-maine-lobsters/>

Social Movements and Social Change:

This links you to a chapter in a textbook about social change and and social movements.

<https://opentextbc.ca/introductiontosociology/chapter/chapter21-social-movements-and-social-change/>

The Pacific Institute for Climate Solutions article on encouraging social mobilization.

<https://pics.uvic.ca/sites/default/files/uploads/publications/FINAL%20Social%20mobilization-Sussman%20Gifford.pdf>

For facts about green crabs and the American Lobster:, Visit:

[KCI](#)

[EPA](#)

[NOAA 1 & 2](#)

[The American Fisheries Society](#)

[USDA](#)

[WHOI](#)

[NRCM](#)

