

## **OCEANS: RELATED CULTURAL MODELS**

### **Ocean and land=separate worlds**

This model involves the idea that the ocean is not like land. People think of it as a different world, even an alien world, one too vast and mysterious for people to understand. This way of conceptualizing oceans disconnects human experience from life on and in the oceans. When thinking in this model, it's easy to assume that different standards and rules apply to the ocean than to land. It's also easy to disengage from thinking or learning about the ocean – what's it got to do with me?

### **Ocean is vast; Drop in the bucket**

The vastness of the ocean structures thinking in some interesting ways. On one hand, it's easy to conclude that the ocean is too large to truly harm; any damage we might inflict is just a 'drop in the bucket.' People assume the ocean will spread out the effects of climate change because it is big enough to absorb the impacts.

### **Heal themselves**

This model involves the idea that the ocean can repair any damage if given enough time via "natural cycles." In this line of thinking, the ocean will eventually regulate itself. This thinking leads people to conclude that it is unnecessary to intervene to address climate change impacts on the ocean.

### **All on the surface**

Many people have trouble thinking about the ocean, especially the open ocean, as containing ecosystems within it, or currents and other mechanisms that affect the atmosphere, weather and life on land. People habitually conceive of the ocean at a surface level. They imagine things like recreation (boating, fishing, beachcombing, surfing), gazing at the ocean, but never under the surface. This way of modeling the ocean generally prevents people from thinking in terms of interconnected systems, or humans' relationship to the ocean.

### **Ocean acidification –what's that?**

The public is unaware of the concept of ocean acidification and its effects. Without being presented with an explanation of how the ocean becomes more acidic as a result of increased CO<sub>2</sub> absorption, people assume that it is caused by the dumping of sewage and waste, or by acid rain. This leads people to conclude that reducing sewage or picking up trash can solve the problem, instead of the correct solution to reduce the burning of fossil fuels. Communicators should avoid mentioning the term 'ocean acidification' without also explaining how the ocean becomes more acidic as a result of excess carbon emissions through the burning of fossil fuels.

### **Ocean is too big to be harmed**

When this model is triggered, the public has a hard time considering processes and systems; they've already stopped at the idea that the ocean is too big and complex to understand. Reasoning with this model, people conclude that any damage done to the ocean is temporary, as the ocean is large enough to absorb the impacts of environmental problems caused by humans. This model makes it easy to think that if the ocean has a problem, it's too big to fix.

### **Ocean as a resource**

People think of the ocean as something to be shared by all, not owned by any one individual or nation, and that deserves and demands collective caretaking. This model helps to explain negative attitudes toward private beaches, and the sense of shared affront that emerges after highly publicized ocean oil spills. It can lead the public to support policies and regulations that maintain and protect ocean and climate systems. However, because this model focuses on the things that humans can take from the ocean, people can easily slip into 'consumerist' thinking, characterized by unproductive cultural models to "eat it while you can," 'jobs vs. ocean,' 'bottomless grocery store' and 'cost benefit/thinking'. These patterns of thought often lead to conclusions that the ocean can replenish itself despite damage that humans cause, and decisions to value human needs above maintaining ocean ecosystems. When

activating this model, communicators should focus on the human connection to oceans, explaining how changing the ocean affects humans by highlighting the role that the ocean plays in larger climate systems.

### **Basis of Life**

When this model is raised, people immediately understand that the ocean is vital to life on this planet, but they can't explain why marine systems are important, or how they work in any specific or concrete ways. Activating this model can help communicators to gain support for actions people can take to protect the ocean. Talking about the ocean as the basis of life may be a useful starting point for engaging the public, but it must be accompanied by specific explanations about how the ocean plays a role in the overall climate system, and what should be done to address climate change.

### **Ocean supports humans**

People understand that the ocean supports human life by meeting needs for food, transportation, and work. This model also includes the idea that the ocean is a uniquely valuable resource; there are things we rely on from the ocean that are not available elsewhere on the planet. Thinking in this mode, people understand that the ocean is a vital aspect of the earth's systems, and they can easily grasp why ocean systems must be maintained.

## **SCIENCE: RELATED CULTURAL MODELS**

### **New study every week**

This model involves the idea that credible sources stick to their stories. This model, which is a fairly useful rule of thumb for taking in most news stories, is problematic when applied to science, which follows an iterative, incremental process of inquiry. Reasoning from this model, scientists seem like unreliable sources, because they seem to always be announcing a new finding – maybe even ones that contradict prior findings. This model makes it easy to be skeptical of scientific claims, no matter how well supported, because the source itself is under suspicion. Reasoning from this model can also lead to the conclusion that 'the jury is still out' on the existence, extent, or consequences of climate change, and so it's not yet time to act.

### **My observation is as good as yours**

This model revolves around the idea that the state of the climate is revealed through weather and other natural phenomena that average people can observe and judge for themselves. When this model is triggered, people tend to believe that personal observations are as valid and reliable as scientific descriptions of trends. According to this logic, a colder-than-usual winter provides firsthand, and therefore irrefutable, evidence that 'global warming' isn't really taking place, or at least that it isn't as serious and widespread as others assert.

### **"Scientists say"**

When confronted with messages that defer to scientific expertise (such as, "97% of climate scientists agree"), a model of scientific authority becomes top of mind. This model has mixed implications for effective climate and ocean change communications. Most people trust scientists, assuming that their statements are both valid and indisputable. For others, however, appeals to scientific authority call forth the idea that scientists exaggerate and overstate scientific claims in service of a hidden agenda (for funding, political reasons, etc.). While this model increases most peoples' willingness to listen and trust in the information being conveyed, even an uncritical stance towards scientific authority does not orient people towards taking action on climate change. Scientific claims must be accompanied with explanation about how climate and ocean change and its effects operate.

### **How do scientists know that?**

This cultural model involves thinking of science as a complicated activity only carried out by scientists or others with special training. This model isn't necessarily unproductive, because the question of 'how do scientists know something' is a genuine one, and it's compatible with the desire to learn more and understand the nature of current research and its findings. On the other hand, this is a model that also makes it easy to be skeptical of scientific claims because their origins are so mysterious. If scientific activities remain opaque, or if the process by which scientific conclusions were arrived at remains mysterious, then people thinking from this model develop a sense of distrust. The line of reasoning goes something like this: "If I can't understand how you know it, then I have no

reason to believe that you know it.”

### Science is innovation

This model links science with the discovery and invention of things that make life easier and solve problems, big and small. When this mindset is activated, people reason that new technology has solved big problems in the past, resulting in an open-minded, ‘can do’ attitude towards climate change solutions. They can easily imagine that there is no problem too big to solve, and express faith that even if no solution is apparent at the moment, scientific ingenuity and technology will arrive at a solution.

### CONSUMERISM: RELATED CULTURAL MODELS

#### Eat it while you can!

This model operates from the premise that ‘supplies are limited, so act now.’ It recognizes the possibility that certain species may become endangered or extinct, but focuses in on a single implication for humans - the fact that disappearing fauna will no longer be available for human consumption. In this consumerist model, the appropriate response to scarcity is to consume more quickly: after all, smart shoppers get the good stuff before someone else does. There is also an element of resignation to the inevitability of species loss; in economic logic, the unavailability of certain goods is to be expected from time to time.

#### Jobs vs. environment

‘Zero-sum’ thinking is a model that attaches to many societal dilemmas: in situations involving conflict or competing interests, there must be one winner and one loser; for every gain, there must be a loss; there is only so much to go around, so some will be ‘haves’ and others ‘have-nots.’ This line of thinking makes it difficult to envision win-win situations and can cut off the quest for cooperative, rather than competitive, resolutions. In the context of climate change and oceans, zero-sum reasoning places humans on one side and nature on the other. One of the most prominent versions of this model is *jobs vs. environment*. In this way of thinking, people conclude that they must choose between economic benefits and environmental preservation: jobs *or* the environment, but not both. When thinking in this mode, people reason that the only solution is sacrifice, or to stop eating seafood. Not only are these difficult solutions to embrace, they don’t address the root causes of climate change.

#### Bottomless grocery store

This model builds on the notion of oceans as vast, invincible, and inexhaustible – adding an economic fantasy of limitless supply, capable of meeting infinite demand. People find it exceptionally difficult to imagine that the ocean could possibly run out of resources. When reasoning from this model, it’s hard to imagine why policies designed to protect marine species, and the ecosystems that sustain them, are necessary.

#### Cost-benefit thinking

When thinking through this model, people weigh the ‘pros’ and ‘cons’ around what the ocean can provide for humans. This model can allow for productive conversation on climate and ocean change; humans have a vested interest in sustaining ocean systems, and the impacts of climate change come with measurable and observable costs. On the other hand, cost-benefit thinking can also set up unproductive reasoning. People are psychologically predisposed to place a higher value on immediately realized costs/benefits than on intangible or delayed costs/benefits, so the economic gains of today are routinely prioritized over the losses, natural or economic, of tomorrow. (To give an example of how this thinking can sink communications from another issue affecting the oceans, the public can draw some unfortunate conclusions about by-catch, an environmentally detrimental consequence of irresponsible fishing practices. In the cost-benefit way of thinking, the idea that nothing should be wasted emerges; and from there, it makes sense to suggest that the solution is to find a market for everything that is caught.)

#### Ecosystems are valuable resources

This model involves recognition of the practical and economic utility of ecosystems. When applied specifically to oceans, public thinking recognizes that people around the world rely on fish as a major food source, and that the oceans are used to transport goods around the world. A *recessive* (less common or less easily brought to mind)

version of this model involves the belief that the ocean contains other substances important to human lives that may be little known, or yet to be discovered (like cures for disease). People recognize that without a reasonably healthy ocean ecosystem, we would lose highly valuable resources we use to meet our needs. Thinking from this model, the public readily agrees that protection and conservation are important to sustain current ecosystems.

## **POLLUTION: RELATED CULTURAL MODELS**

### **Ocean problems=material pollution**

According to this model, material pollution is the cause of all the ocean's problems. Thinking with this model, people can easily imagine the ocean full of c-rings, plastic bags, chemicals that people have poured down their drains, and pollutants that reach the oceans through dirty industrial practices. Once people are engaged in this line of thinking, it is difficult to communicate about the ways in which "invisible" heat-trapping gases are affecting the ocean, such as the ocean's absorption of carbon dioxide, chemical processes that lead to acidification, or the effect of increased water temperatures on various ecosystems.

### **The root of all environmental problems**

Peoples' thought processes about environmental problems usually start and stop at pollution because the cause and effect is so tangible and easy to understand. When people think about environmental problems, pollution is the first thing that comes to mind. This leads people to conclude that pollution is the cause of all the problems in the ocean. Thinking through this model, people easily confuse climate change's effects on oceans with other environmental threats to the ocean, preventing them from understanding that the solution is to reduce the burning of fossil fuels.

### **Just clean it up**

When people think of climate change as synonymous with pollution, they are highly susceptible to policies that may solve pollution but not address the root cause of climate change, that is, reducing our reliance on fossil fuels. This model focuses on retroactive mediation, not proactive prevention. People think about cleaning up discrete spills, not preventing system-wide damage. 'Cleaning up' is understood as a straightforward process that will quickly reverse the damage, once the clean-up action is taken. The danger here is that unlike many forms of material pollution, carbon dioxide can stay in the atmosphere for thousands of years, and can't really be removed. When reasoning from this model, the urgency of reducing carbon emissions as soon as possible is undermined. Addressing pollution is seen as something like picking up litter.

### **Solution=Recycling**

When thinking about the cause of climate change as "pollution," people automatically turn to mismatched solutions, such as recycling, and other individual level solutions that don't really address the causes of climate change on a broad scale. Once in a 'pollution' mindset, people conclude that 'recycling' is far and away the best solution to any environmental problem facing the ocean, including climate change. Any mention of 'recycling' in climate change communications brings "cans, glass, and paper" in recycling cans top of mind for people, and they lose sight of the real solution to climate change, reducing carbon dioxide emissions.

### **Carbon dioxide = carbon monoxide**

According to this model, the public correctly assumes that gaseous pollutants caused by human actions are causing climate change, but they confuse carbon dioxide with carbon monoxide, assuming that the former is safe, and the latter is dangerous. At the root of this model is the idea that anything "natural" cannot possibly harm the earth, but "artificial" (or human-made) pollutants should be reduced or eliminated. Because carbon dioxide is seen as "natural," it could not possibly be bad and there is therefore no reason to limit its emission. As long as this pattern of thought persists, it will continue to be extremely difficult for the public to appreciate the dangers of carbon dioxide and its effects on the oceans and climate. Climate change communicators must take care to clearly distinguish between carbon dioxide that is "natural" are part of life processes with dangerous and excessive carbon dioxide emitted through the burning of fossil fuels.

### **Human caused**

People easily connect oceans to man-made problems through pollution, and this can be an entry point to talking about the causes of climate change. When thinking with this model, people readily take responsibility to solve environmental issues facing the ocean. Communications that call forth this model must take care not to confuse carbon pollution caused by the burning of fossil fuels with other kinds of material pollution, or the public will turn to recycling as the solutions.

## **NATURE: RELATED CULTURAL MODELS**

### **“Works in cycles”**

This model conceives nature as a set of unstoppable cycles: recurring events that repeat themselves endlessly, with inertia that is unchanging and unchangeable. Because the cycles are viewed as fixed and outside the control of humans, people thinking through this model do not perceive the need to attend to climate and ocean change. They assume that if cycles are disrupted somehow, nature has ways of re-establishing the cycles - the earth will fix itself. This line of thinking obscures human responsibility for climate change, overestimates the ability of delicate systems to adapt to human activity, and underestimates the impact of disrupted cycles on other cycles and on humans.

### **Nature is self-correcting**

According to this model, the earth, and nature, has a way of fixing itself no matter what happens to it. This model is closely tied to other models, that the earth is so big it can't possibly be destroyed through human actions, that the earth is always changing, and it cycles between healthy and unhealthy periods. Once this model is triggered, people reason that the earth will fix itself in time, depressing support for action to address climate change.

### **Change is natural/fatalism**

This model holds that natural systems (ocean, earth, and atmosphere) are ever-changing, and that this change is natural; and that anything “natural” is “meant to be.” Thinking with this model in mind, people reason that species and ice ages come and go, this is the way nature works. This way of thinking makes it easy to view claims about humans’ impact on the environment with skepticism. This model also gives rise to some unease about the idea of “messing” with nature: from this perspective, human interventions in nature are seen as ‘unnatural,’ and therefore, likely to do more harm than good. This model holds that even if humans *could* influence changes in nature (which is viewed as highly unlikely), they probably shouldn't. While this model is fairly accurate for most of human history – before modern technology, climate affected humans, but not vice versa – in the age of fossil fuels, this model presents one of the biggest cognitive roadblocks for effective communications around climate and ocean change.

### **Mother nature**

This model anthropomorphizes the earth as a living being, comparing the planet to a mother that nurtures humans. By thinking of the earth as something akin to a deity-like figure dedicated to caring for people, they imbue the planet with both human characteristics and supernatural powers that set up unproductive ways of thinking about climate and ocean change. Mother Nature can get sick, but can heal herself, and she always ends up healthy when all is said and done. Mother Nature will never fail humans; she will always provide. Mother Nature can take care of herself; she is too powerful for mere humans to harm. Mother Nature is mysterious; her ways are too complex for humans to truly understand.

### **CO<sub>2</sub> is natural, therefore it is good**

This model is the idea that anything occurring “naturally” in the world is good. When thinking with this model, people recall science class lessons that carbon dioxide is necessary for maintaining life on earth. While this is true, this thinking prevents people from understanding carbon dioxide’s role in climate change. Communicators must take care to clearly distinguish ‘regular’ carbon dioxide from the ‘rampant’ carbon dioxide emitted through the burning of fossil fuels, that thickens the heat trapping blanket of carbon dioxide surrounding the earth.

### **Web of Life/It's All Connected**

This powerful cultural model is the assumption that everything on earth is connected to everything else through a web of life. Because everything is connected, the actions that humans take are understood to affect other animals and ecosystems. Likewise, any damage to the earth and its systems will come back to harm humans. Thinking with

this model, people easily accept human responsibility for changes to the climate, and are open to discussing solutions. However, this model should not be confused with understanding how systems, like the climate, actually work and should always be accompanied by explanation connecting human actions to climate change to effects on animals, ecosystems and humans

### Shared fate

This model holds that humans, like other species, are part of nature. All natural life is conceived of as complexly interconnected, like a web. In this way of thinking, the fate of the planet is linked to the fate of humans and all other species. An example of this model in action is revealed in peoples' tendency to cite 'butterfly effect' examples, in which small incidents in one locale create large effects somewhere else. This 'web of life' model is naïve and shallow—it does not help people think about *how* things are connected—but it is generally compatible with an ecosystems perspective, and when activated, opens people to explanations of how parts of ecosystems are connected and influence each other.

## CLIMATE CHANGE: RELATED CULTURAL MODELS

### Climate=Yearly weather patterns in place

This model makes long-term understandings of climate change difficult to think, because it sets peoples' time frame for thinking about climate at yearly increments. They can easily imagine that seasons are part up the yearly weather patterns that make up the climate in a given location, but cannot envision the incremental changes to these patterns over longer periods of time. According to this model, climate is a longer-term description of weather patterns in a particular place, making it very difficult to envision climate change on a global scale. Communications need to widen the public lens so that climate is interpreted in terms of global systems with local impacts—in short, that people's understanding of local is always in the context of global.

### It's about the ozone isn't it?

This model of how climate change happens is based on an incorrect understanding that gaseous pollution is increasing the hole in the ozone layer and letting more of the sun's radiation into the atmosphere, which causes the earth to warm and the climate to change. This model underscores the widespread confusion about the underlying mechanism and the current and expected impacts. Because people believe that excess heat comes in through a hole in the ozone, they reason from there that the solution is to plug the hole in the ozone, stop using CFC's, or that the problem has already been solved. Thinking this way makes it difficult to connect the relationship of fossil fuel use to climate change

### Big, scary, depressing

This model associates the topic of climate change with enormous, and enormously distressing, problems: images of emotionally disturbing outcomes such as starving polar bears; frightening events such as flooding, fires, or hurricanes, and vague but vast outcomes such as 'the end of the world' or general global chaos. When thinking through this model, climate change ceases to feel like a specific problem with specific solutions. This crisis-laden model can lead to people to disengage from the issue to avoid unpleasant emotions.

### System? What system?

This model represents a cognitive hole in peoples' minds around climate and ocean systems. Without explanation of how they operate and are connected to each other and humans, the vast majority of people simply cannot imagine systems in nature. This prevents people from understanding how human actions affect the natural world, which in turn, affects people. Communicators should always assume this dominant model is operative and explain how climate and ocean systems work when talking about these issues.

### Something needs to be done

This model connects to a shared belief that problems that receive a great deal of public attention (through media, politics, etc.) deserve to be addressed—somehow, at some point, by somebody. People readily believe that environmental degradation is occurring; this fits in with an overarching cultural narrative about human activities destroying the earth. When it comes to climate change, most are of the opinion that it is real, happening now, and

caused by human activity. People are concerned about its impacts, and because of our shared belief that acknowledged problems demand solutions, they feel some sense of urgency for movement on the issue.

### Climate change=warming

The most dominant model in thinking about climate change is through the understanding that climate change is about the earth getting warmer. Though people reasoning through this model correctly conclude that climate change is synonymous with problems associated with higher temperatures, they have difficulty understanding how or why warming is happening. People get stuck explaining global warming in the face of colder than usual winters, and other short term, observable inconsistencies in weather leading to skepticism that the earth is not actually getting warmer. This cultural model can work for or against climate change communications. On one hand, communicators do not need to convince the public that the planet is experiencing negative effects due to average global temperatures getting warmer. On the other hand, the narrow association between climate change and warming fails to capture the full picture of climate changes and their effects. Rather than substituting terms like “climate change” for “global warming,” communicators should focus on helping people to understand how climate change works and affect the oceans and humans through clear, concise explanation.

### Melting Ice

This model, that rising global temperatures are melting polar ice caps, is dominant among those to claim to believe AND deny climate change. Thinking with this model, people can easily point to melting ice as the cause of sea level rise. While this model helps people to clearly connect climate change to changes in the oceans that are affecting humans, once called forth, it is the *only* effect people readily turn to. This model hides the wide range of ways in which oceans and climates are changing, and the myriad effects of these changes, by focusing people’s attention on ice caps and polar bears. Communicators might be able to expand this model by leveraging it to help people see the interdependence of the ice caps and polar bears with a larger climate system and set of impacts. However, once activated this model and its associated imagery are so dominant that expansion may not be possible.

### What can I really do?

This cultural model has two sides: on one hand, it involves a sense of responsibility to do something about environmental problems; and on the other, the sense that the problem is too big, too far advanced, or just too entrenched to be solved. The model also involves the assumption that because it is “human nature” to do things that harm the earth, environmental problems are inevitable and cannot be stopped. Moreover, because our society is structured in ways that make it difficult to reduce personal consumption of fossil fuels, the feeling that the problem is too hard to solve is reinforced. People thinking from the ‘what can I *really* do?’ model may feel both a sense of personal responsibility and a sense of futility or inadequacy. They may gravitate toward general ‘earth-friendly’ solutions, such as using fewer resources, recycling, or donating to environmental causes, but feel like this still isn’t enough; or they may throw their hands up and determine that nothing can be done, but still feel a sense of concern or worry. To make this model productive, communication strategies must carefully pull forward the desire to help, and push to the background the sense that the help won’t make a difference.

## PUBLIC AFFAIRS: RELATED CULTURAL MODELS

### Politics as usual

Cultural models about the ‘broken’ political system are strong and deeply unproductive. Negative associations with politics include corruption, mismanagement, inefficiency, incompetence, and inertia. In this model, politicians make decisions based on their own self-interests, not the public interests; profit and political pandering are their top motivations. In this model, change is unlikely to occur because of gridlock and partisan bickering; if something does get done, it’s probably the wrong thing. Once thinking about climate change in terms of ‘politics as usual,’ people may conclude that the problem can’t or won’t be fixed. It then makes sense to disengage, or settle for the solutions that they can implement themselves.

### Two sides to every story

This model of fairness holds that in political discourse, each perspective deserves an equal hearing. While this model doesn’t necessarily cause people to agree with climate change skeptics, it does lead them to the sense that

the issue is a topic of debate and everyone is entitled to their opinion. A similar but more cynical model is ‘political football’ - the sense that climate change is just another political issue in which partisan ideology substitutes for facts and ‘truth.’ If neither side is trustworthy, then it makes sense to ignore public discussion of the issue altogether. When trying to communicate information that is supported by overwhelming evidence and scientific consensus, these ‘back and forth’ models can be significant cognitive obstacles.

### **Even if we do our part, other countries won’t**

When people think of major ocean pollutants, they often think of industrial practices. They are convinced that the oceans near newly industrialized nations are in worse shape than the oceans near richer nations, and that other countries don’t follow the same environmental standards and laws as business in the US. Because of this, people reason that there is little to nothing we can do about other countries allowing corporations to pollute. This closes them down to thinking through productive solutions.

### **Individualism**

Individualism is one of the most pervasive cultural models in America. This model locates the individual as the agent of change and remediation. Using this model, people assume that responsibility for responding to climate change lies with individuals, and suggest individual level solutions such as recycling, turning off lights, buying a hybrid, riding a bike to work and using solar panels. The Individualism model is a major obstacle to communicating about solutions to climate and ocean change. When thinking through this model, people become resistant to seeing public policies as part of the solution and assume that government action would involve bans on consumption that mandate individual action, or curtail individual freedoms.

### **Government is good at protection**

This model holds that one of the primary purposes of government is to provide ‘protection,’ and that all things considered, this is something that government is actually pretty good at. Once thinking of government as ‘protector,’ the public can go in different directions, some productive and some less so. When using the Government As Protector model, people are more likely to focus on solutions around limiting emissions on a broad enough scale to curb climate change. On one hand, people thinking through this model trust in the government to protect citizens from major threats to health, safety, and wellbeing. They expect, and may even demand, that government play an active role in identifying and mitigating threats. This mindset makes it easy to support policies and regulations that maintain and protect ocean and climate systems. On the other hand, the notion of government as protector can combine with notions of government as ineffective or unresponsive, which then makes it easy to fear that government is protecting the environment at the expense of some or all people. This line of thinking makes it much more difficult for people to reasonably engage in consideration of public policy solutions.

### **Civic Responsibility**

This cultural model holds that civic participation and social action are duties of every citizen. ‘Dialogue’ is central to Americans’ concept of civic responsibility; when thinking from this model, people see themselves as responsible for ‘being informed’ as well as for informing others by sharing their perspectives in public forums, reaching out to public representatives, etc. Attention to the public interest – thinking beyond individual interests – is also viewed as part of being a responsible citizen. This model also holds that citizens can and should take reasonable measures to align civic institutions with the dictates of their conscience; actions such as voting and protesting flow from this line of thinking. This cultural model offers many highly productive entry points for engaging the public in productive discourse on climate change.

### **Americans are problem solvers**

This model involves the idea that America has progressed as a nation largely because we tackle, and overcome, challenges that arise. It associates American culture with characteristics such as determination, courage, intelligence, practicality, cooperative spirit, and inventiveness. When thinking through this model, people can easily imagine that there is no problem too big for us to solve, and express faith that even if no solution is apparent at the moment, American ingenuity and technology will arrive at a solution. The model also emphasizes the necessity of collective action and cooperation: big problems are solved by ‘coming together.’ This cultural model offers many highly productive entry points for considering ways to address environmental challenges.

## HOW CULTURAL MODEL THEORY INFORMS STRATEGIC FRAMING

### ***What Every Framer Should Know and Use***

The following features of cultural models are useful to understand and apply in strategic communications:

#### **Cultural models are widely shared.**

Cultural models are common to virtually all members of a culture – shared even across the demographic groups that communicators sometimes assume have very different opinions. We pass on and reinforce cultural models within culture, through family interactions, through school, the media, and interactions with others. The widely-shared nature of cultural models makes them incredibly valuable for strategic framers who wish to change the conversation about a complex social issue.

*Rather than trying to tailor the content of a message for tiny slices of the population, a strategic framer tailors the message around the cultural models that she can safely assume are shared by everyone she encounters. This is more efficient, and ultimately, more effective.*

#### **Cultural models structure thinking.**

As members of a culture we share implicit mental models of how the world works and apply these models in understanding novel, unfamiliar ideas. These “cultural models” help us filter and categorize new information, determine relevance and priorities, and guide our decision-making. We use cultural models to reason and make sense of information and come to opinions. For instance, a visitor reasoning from the model that the ocean is like a ‘bottomless grocery store’ is more likely to express the opinion that restrictions on fisheries are unwarranted. That same visitor, reasoning from another model that they also have in mind – the model that ecosystems are all connected and should be protected – becomes more likely to express the opinion that there is a place for sensible regulation of fisheries. The takeaway point is that communicators can worry less about the opinions that people have already expressed, because we know that opinions are fleeting, shaped by the model that the person happens to be reasoning from at a given time. And we know that the way we frame information has the power to bring up other models, ones from which a message is more easily processed.

*Cultural models are important for communicators to consider because they shape and constrain how people think about an issue and the solutions that they see as effective and appropriate.*

#### **Cultural Models are Durable.**

The understandings that members of a culture share and use to process information are the result of persistent exposure to common experiences over time. We share cultural models because we share experiences that have led us over time to incorporate certain assumptions about how our worlds work. This means both that existing understandings are durable and that the genesis of new models takes time. Whereas survey and polling research that looks at explicit opinions becomes obsolete with minute changes in sentiment, the durability of cultural models means that research that works at this level has a long shelf life and recommendations remain evergreen. The durability of models appears to present a pessimistic picture of change—if models are so constant over time, how can we ever hope to enact change at this level? The solution to this apparent dilemma lies in the fact that there are *multiple* durable models but also in that models derive from exposure to common experiences over time. If communicators can change the context in which people experience an issue—through the media, through advocacy and through policies that change the context—they can, over time, enact deep, meaningful and sustainable changes at the level of cultural models.

*The durability of cultural models means that communicators need to be aware of these ways of thinking and that they need to work hard over time to create new ways for people to think about social issues.*

#### **There are multiple cultural models on any given topic or issue.**

People who study cultural models have found that more often than not people use *multiple* cultural models to think about an issue or concept. For example, people may think about zoos using the understandings that they work to conserve species and habitats, but may also employ the assumption that wild animals should not be caged. This means that, from a science translation perspective, not all of the models that are available to people are equally

productive—some may impede an understanding of science messages while others may be productive in creating ways of thinking from which the science is easier to understand and use in decision making. The implication for strategic framers comes in the technique of avoiding ‘activating’ unproductive cultural models; and in finding ways to cue and strengthen those ways of thinking that allow people to reason more productively about a message or piece of information.

*Because there are multiple models available; because some are more productive than others; and because we can use frames to activate one or the other, knowing the cultural models available on a given issue provides a strategic advantage to communicators.*