

Task Force Climate Change: A Patron Saint of Lost Causes, or Just Ahead of Its Time?

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This essay explores the origins of the 2009 U.S. Navy Task Force Climate Change (TFCC) from the perspective of its founder and initial director. The director's background is described briefly, along with events and actions of Navy leadership that led to creating the TFCC. The essay states five lessons learned within the context of setting the direction and tone for change in a large organization and examines five areas in which the TFCC arguably has made a positive difference to the U.S. Navy. The essay provides an overview of U.S. Navy and national climate-related actions after the author's tenure as director of the TFCC, and concludes by addressing climate change risks within the context of current efforts to understand and manage adverse impacts from the COVID-19 virus.

All I ever wanted to do was to forecast the weather. I'm not sure exactly why or where that interest came from; my parents told me a tornado went through our backyard when I was two years old, although I have no recollection of that event. I grew up in an old manufacturing city in upstate New York; maybe the brutal winters with eighty inches of snow each year had something to do with it. Whatever the reason, by the time I was in first grade, my six-year-old self knew I was going to work in weather-related fields for the rest of my life, even if I really didn't know what that meant at the time.

I attended Penn State University for my undergraduate studies, which was and still is a magnet for teenaged kids with a passion for weather. Their undergraduate meteorology program has been leading the nation for many decades. Unfortunately, that meant paying out-of-state tuition, something that really wasn't within reach for our family. In the search for how to pay for college, I stumbled upon the Reserve Officers' Training Corps (ROTC), a recruiting and commissioning program used by the military services to bring young officers into their ranks. The Air Force and Navy each had their respective weather programs, so I applied to both services. The Air Force said "no," the Navy said "yes," and so at seventeen years of age, I joined the U.S. Navy as a midshipman.

While my initial goal was to immediately enter the Navy's weather corps (known as oceanography special duty officers), the Navy had other plans for me. Rather, I was sent to sea on an old guided missile destroyer as a regular line officer to "drive ships." Although I was intensely disappointed, having waited my entire life to be a meteorologist, it turned out to be the best career move possible. There is no better way to understand your future customer or client than to be one. Additionally, you build a lot of credibility within the ranks of naval officers by becoming qualified in one of the core areas of the Navy: driving ships, flying aircraft, or operating submarines. I was learning a lot about institutional culture and how to talk about subjects that, while important, may be seen as peripheral to the audience.

For nearly thirty years, I worked as a naval officer specializing in oceanography and meteorology. Much of my time was spent communicating weather impacts to the operators: those who were in charge of ships, aircraft, submarines, or special operations. Nearly a decade of my time was spent at sea, where you get firsthand and immediate feedback on your weather forecasts and recommendations! Along the way, the Navy sent me to the Naval Postgraduate School to earn both a master's and a doctorate degree in meteorology. I was also able to work for the secretary of Defense's internal long-term think tank, an experience that taught me a lot about competitive strategies and net assessments. In 2004, I assumed command of the Fleet Numerical Meteorology and Oceanography Center. Shortly after arriving, I hosted a workshop titled "Climate Variability and Change in Asia: Implications for Regional Stability." The workshop was cosponsored by the National Academy of Sciences (NAS) and the Department of Defense's (DOD) Office of Net Assessment. Unfortunately, there was neither funding (nor interest) for any follow-up work and the notes were soon set aside.

In 2007, figurative lightning struck, and I was fortunate enough to be selected for the rank of admiral. My first job as an admiral was to run the operational component of Naval meteorology and oceanography; most of the broader ocean and weather policy and budget decisions were made by the oceanographer of the Navy and the Navy's headquarters staff in the Pentagon. However, events were happening that year that would get the Navy's attention and, ultimately, raise the institutional awareness of a changing climate.

In the autumn of 2007, the amount of Arctic sea ice precipitously collapsed. Since the Cold War ended, the Navy had decreased its interest – along with its operations and research – in the Arctic, but submarines still transit through or operate in that region and some of our closest allies continue to operate in the High North. As often happens with a surprising external event, lots of people gave lots of unsolicited advice and recommendations to the Navy and its senior leaders. And as is also common with large organizations, it took a while for the Navy

to respond, and when it did, it appointed someone to study the matter and make recommendations.

This is how, in the spring of 2009, while going about my daily operational job, I received a phone call from Admiral Gary Roughead, the Chief of Naval Operations (CNO). The CNO is the admiral in charge of the entire U.S. Navy, and he asked me to come up to the Pentagon, assume the duties as oceanographer and navigator of the Navy, assess the issues going on with the Arctic in a changing climate, and give recommendations as to what, if anything, the Navy should do. In the military culture, when you are “asked” to do something by someone senior to you in your chain of command, the correct response is “aye aye sir/ma’am,” and so my family and I moved shortly thereafter from Mississippi to Washington, D.C., and I began work at the Pentagon. In May 2009, two weeks after moving to D.C., I was standing in front of a meeting of the CNO, his deputy, and his most senior staff, recommending what actions the Navy should take in reaction to the sudden changes in the Arctic maritime environment.

At first – or even second – glance, it’s doubtful many would have picked me to lead what turned out to be a multiyear Navy effort to better understand the impacts of climate change on naval and defense operations. I did not have a background in climate science and was not employed by the Navy to do research. That one-day climate and national security meeting I hosted five years prior in Monterey, California, never appeared on anyone’s radar. My Ph.D. research had been focused on understanding why some typhoons strengthened rapidly and others did not, hardly the stuff of rising temperatures, melting ice, or expanding oceans. I had not paid a lot of attention to the discussions surrounding climate change, as there were more than enough challenges in operationally observing, predicting, and understanding the impacts and opportunities of the weather and ocean environments on tactical and operational scales of time and space. I would have to say I was an agnostic on climate science, or at least how climate science was often portrayed: it was not in my core area of expertise and much of the field seemed to be co-opted by environmentalists, with their emphasis on the plight of charismatic megafauna, usually thousands of kilometers away from where the people they were communicating with lived.

One of the things I enjoyed so much about my career in the Navy was the wide diversity of jobs, problems, and opportunities it presented. Every two to three years, you were sent to do a different job, to work for a different boss, in a different environment, and, usually, in a different organizational component. So, when the opportunity came along to examine the changes in the Arctic and what it meant, I was happy to do so, and set about doing it in a methodical way.

Two of the things I do when tackling a new challenge are: 1) attempt to ascertain what is ground truth, and to what level of confidence do we understand these

facts; and 2) find the truly smart people in the field, talk to them, ask them questions, figure out the strengths and weaknesses of the arguments, and ramp up my own understanding as quickly as possible. So that's what I did. In the two weeks I had to prepare, I flew out to the Applied Physics Lab at the University of Washington and had intensive sessions with the scientists at their Polar Science Center (PSC). I learned that although the Navy had mostly divested from the Arctic, the PSC "kept the (Arctic) flame burning." Their scientists were as knowledgeable about conditions in the Arctic, and what was forcing the changes, as anyone in the world. I researched the counterarguments to global warming, either that it was not happening or that recently observed changes had little to do with human activity, and found those arguments fell apart in the face of overwhelming evidence: the evidence based on physical theory that we have understood for over 150 years; evidence from a wide variety of independent observations; and evidence from multiple climate models that, at their core, are based on the same physics that allow us to successfully predict individual routine or extreme weather events many days in advance.

I was fortunate to not have much intellectual baggage on this subject. The Navy, for all its faults and flaws, is a technocratic organization that, for the most part, will consider evidence if it is framed and communicated in a way that is understandable to smart but nonspecialized leadership. Years at sea and a history of warfare have taught the sea service that you ignore documented facts and trends at your peril, as your adversary may well use that knowledge to seek advantage in the next round of combat or influence on the sea. If there was unease on the Navy's part, it was knowingly engaging on an issue that, for reasons completely unrelated to the science or facts, had become increasingly partisan by 2009. By and large, the Pentagon and the military services work hard to avoid partisanship or even the appearance thereof.

What did I tell the Navy's leadership back in May 2009? I told them that the changes in the Arctic were a challenge, not a crisis, but if we ignored the changes, it would become a crisis for our Navy. I also told them the changes in the Arctic were the harbingers of much larger changes and recommended creating a U.S. Navy Task Force Climate Change (TFCC) to examine future impacts and recommend a way ahead. The Navy agreed and on May 15, 2009, initiated the TFCC, with a near-term emphasis on the Arctic. The CNO gave me arguably the best set of orders I could ever have hoped for: "Show leadership on this [climate change] issue at the national and international level."

Of course, nothing in a big organization, or the real world, happens in a vacuum. The Pentagon, spurred in large part by a 2007 CNA (formerly Center for Naval Analysis) report on climate change and national security, and bipartisan encouragement from the U.S. Senate, was thinking about how to incorporate climate issues into its upcoming strategic review, the so-called Quadrennial Defense

Review (or QDR), due in 2010.¹ Simultaneously, the NAS was working on a report for the Navy examining the national security implications of climate change that would be released in 2011.² These events provided momentum and “top-cover” within the Department of Defense for the Navy to confront openly the risks and challenges of a changing environment.

With the luxury of a decade’s worth of hindsight, I can say the climate-related QDR language of 2010 was the most appropriate for that time. It highlighted the inextricable links between our global energy choices and the rate and magnitude of future climate change. The QDR correctly stated that while climate change was unlikely to be the sole cause or driver of a future conflict, it had significant potential to (in my words) “make bad things worse.” The QDR rightly highlighted the risks to defense infrastructure in a warming, wetter world with rising sea levels. The QDR, unfortunately, did not anticipate the lack of action we would take to address these risks over the coming decade.

For the next three years, while on active duty, I had the opportunity to both learn and talk about the impacts of climate change on the military and specifically on the Navy. The lessons learned will be familiar to anyone tasked with driving change into their organization.

Understand the culture of the organization to which you are trying to communicate. The U.S. military is a conservative but pragmatic culture that believes it’s based on a meritocracy. How much that is true is best left for others to decide, but that is the self-talk in the Building (“the Building” is how many in the military describe not only the physical structure of the Pentagon, but the culture of the DOD). The military is a huge consumer of science and technology, but paradoxically does not think of itself as a science organization.

In the late 1990s, I was the fleet oceanographer for the U.S. Navy’s Seventh Fleet, the organizational unit responsible for naval operations in the western Pacific and Indian Oceans. One of my daily tasks was to give our three-star commander a quick weather update sometime between 6 and 7 a.m. each morning. While ostensibly about weather, it was really about our operations over the next few days, and what significant issues or impacts the commander should have on his scope. While I could have talked exclusively about the weather, the Fleet units of the Navy are operational entities, not science organizations. Their culture values operational excellence, so framing weather discussions in that construct made my briefings much more valuable and increased my credibility to the staff. That was invaluable because, when weather really was the primary issue of the day, people would not only listen to me, but would also oftentimes approve my recommendations on how to manage that risk.

Given these realities, I would never lead a Pentagon briefing with a discussion of greenhouse gasses or the Keeling curve, but rather would talk about the impacts

of a changing Arctic, rising sea levels, or effects on specific bases. The most frequent questions I received were “Is this really going to be bad?”; “When will this happen?”; “How sure are you?”; and “What’s this going to cost?” The interests and questions of that audience would dictate how much (if any) of the science behind climate change I would discuss.

Talk about what interests your audience, not you; talk in their language, not yours. Successful briefs in the Pentagon are simple: they tell a story; they tell someone what the risk is, what the mitigation strategies are, when we need to implement them, and how much the remedy will cost. The brief needs to be grounded in analysis and intellectual rigor, and the briefer needs to be familiar with the underlying science, engineering, intelligence, and so on that supports the discussion. But delving immediately into the details – or science – is rarely a recipe for success.

I saw this firsthand when I was able to successfully argue for several million dollars in additional funds to recapitalize the U.S. Navy’s weather modelling capability. Several of my predecessors had tried to do this without success. They were armed with science facts, dozens of graphs showing different levels of weather model skill, studies from highly paid outside analysts, all to no avail. I took a different tack: Our current generation of weather model had its genesis thirty years ago. I told my boss at the time who controlled the funding that this was really no different than why the Navy always needs to be building ships. Naval ships have about a thirty-year life expectancy, and I told him that our model had been around for thirty years and had had many upgrades, but at some point, you just need to build a new one. He agreed. The smartest thing I did then was to take all my slides and analyses off the table, put them back in a folder, thank him, and leave his office. The entire meeting lasted five minutes.

The primary interest in the military services and the DOD is ensuring our forces, both today and tomorrow, can counter any threats posed by a potential adversary, and that we can do that in the operating environment (or battlespace) of tomorrow. If the physical battlespace is changing, then we need to change as well. Having said that, an understanding of this science and, frankly, the externally driven disinformation campaigns surrounding climate change, was critical. Some people genuinely wanted to understand, while others had significant misconceptions about our changing climate and its anthropogenic forcing. Being able to explain the science using stories, plain-language terms, analogies, and even defense-relevant jargon was an asset.

The messenger matters. Although we would like to believe that in a diverse and inclusive world, it does not matter who is delivering the message, in the real world, that’s not the case. Wearing the uniform of a naval officer, being selected as an admiral, and being qualified in two separate warfare communities gave me credibility when talking to other senior personnel in the DOD or Navy, even though there are many climate scientists who have a much deeper understanding of various as-

pects of climate change. Tribal affiliations matter, and the military is no different than any other part of society in that regard.

Sometimes appearances and perceptions are just as important as reality. During the Paris Agreement negotiations, Senator Ted Cruz (at the time a presidential candidate) held a U.S. Senate hearing on climate change (“Data or Dogma”). Of the five witnesses, I was the only mainstream scientist. But rather than play the role of a scientist, I thought it was important to also portray my role as a retired senior naval officer. Arguably, one of the most important things I did in the hours preceding the hearing was to get a fresh haircut!³

Even when our minds know we should plan ahead, it’s extraordinarily difficult to change. There is an entire body of literature examining the incentives for, and barriers to, a military organization changing itself. My personal experience was that most often, change was either driven by senior leadership, or it came in response to a threat or challenge that now appeared to be near-term.

It was a late Friday winter’s evening in the Pentagon, and I had one briefing left. It was to a four-star admiral who had a no-nonsense reputation, to put it kindly. It did not help that his aide informed me he was suffering from the flu and really needed to go home, so his mood was probably not the best. My brief was about China’s increasing capability to threaten our aircraft carriers. There really wasn’t much new here – we had been studying this particular threat for several years. About five minutes into the brief, the Admiral stopped me and wanted to go over the timelines of when China could deploy this threat. He said, “this is now inside our budget cycle; that changes everything.” The threat had moved from one of the nearly infinite, “this could happen sometime in the future” issues to something that now should be countered within the current five-year budget cycle.

The Pentagon probably has a better reputation for long-range planning than it should. While no one in the Building intentionally designs a force to fight the last war, divining the future, like predictions, is hard (with apologies to physicist Niels Bohr). What may be less recognized is the huge range of predictability across future events, dependent upon spatial and temporal scales, and root causes. At one end of the predictability scale are astronomical and tidal events, described well by Newtonian physics. Although they are predictions, they are treated as simple facts. Many of the threats the Pentagon addresses are on the other end of the spectrum: a complex mix of economics, technology, sociology, and individual ego, leading to very low predictability, certainly in a deterministic sense. I argued that climate change and climate risks are somewhere in the middle of this spectrum. We have a much higher degree of predictability of the earth’s climate thirty, fifty, or seventy-five years in the future than we do about the state of our great power rivals, violent extremism, or even how known technologies may be combined and weaponized. We, of course, do not have perfect knowledge of what the climate will be like decades from now, and there are important aspects of climate change

that have low predictability. Communicating what we do know, rather than all the things we don't know, while at the same time being up front with the limits of our knowledge, and doing this in a way that makes sense to busy people with broad portfolios was, and will always be, a challenge.

The challenges of the budget and allocating money are nearly as great as those of managing the future. The DOD has a rolling five-year planning process for allocating funds, and of those five years, the competition for resources in the first two years is by far the keenest, as those are the budget numbers that Congress will review and ultimately decide whether or not to fund, and at what level. Threats and risks beyond five years are considered, but in a more indirect manner. Oftentimes, the Pentagon will try to use some type of hedging strategy or acquire capable systems with multimission potential, so regardless of how the exact future evolves, there will be suitable capability and capacity in the inventory to address whatever threats and missions are most prevalent. Ten years ago, much of climate change risk was perceived as both incremental and in the "out-years" (beyond the immediate budget). This happens with many threats, both real and imagined. For example, terrorism and violent extremism did not move to the funding forefront until 9/11, despite the many warnings in the 1980s and 1990s that these threats were growing. It's not that the Pentagon is unaware of these threats and risks, but which ones will become imminent and require a response? Today, the Pentagon is grappling with cyber threats, great power competition in undersea, air, and space domains, hypersonic weapons, and artificial intelligence, and is now doing so in a physical environment that is no longer stable. The eternal question: how do you allocate your time, money, and focus to best address these collective challenges?

Both the White House and Congress matter – and they matter a lot. It's almost too easy to feel confident, possibly even a bit smug, coming to Capitol Hill as a senior naval officer working in the Department of Defense. You will quickly find, though, that many members of Congress and their senior staff carry with them a pocket version of our Constitution, and are ready to break out Article One at a moment's notice, and remind you, subtly or otherwise, who has the power of legislation and the power of the purse.

The president is, of course, the commander in chief, and all budget requests are ultimately approved by the White House. However, for any program to be funded and enacted into law, it must first be approved by both chambers of the U.S. Congress. Good, bad, or indifferent, that is our system of government and the reality and prism through which the Pentagon (and all executive branch departments) view the world. If either the White House or Congress is hostile to a program or policy, its likelihood of seeing the light of day is greatly reduced. One of the big frustrations, or tragedies, of the past decade has been the inability of Congress and the Executive Branch to come to consensus on how best to address the risks of climate change to our security. During the second term of the Obama admin-

istration, there was a lot of momentum at the political level to raise awareness of this issue. Unfortunately, that rhetoric did not translate into discrete budget or program requests. At the same time, the Republican majorities in the Senate and, after 2014, in the House were implacably opposed to the idea that climate change was impacting security (or anything else). Without an effective legislative strategy to counter that opposition, much less was done than said about climate risks in the military and, as the years went on, there was increasing skepticism that this was a real issue, rather than a political talking point used by the White House. Ironically, the positions of Congress and the Executive Branch have changed with the election of President Trump. We now have an administration in which it is hazardous to your career's health to bring up climate risks in any form, while Congress has moved from antagonist-in-chief to becoming a cautious advocate for the military's adaptation to climate risks.

This is especially true for Arctic issues, but it is also true for protection of domestic military infrastructure against climate impacts. The Arctic, in particular, is a combination of strange bedfellows and stranger politics, where there are converging bipartisan interests in trade (Maine), ship construction (Gulf Coast), ship homeporting (Washington State), and fossil fuel, infrastructure development, and employment (Alaska).

It's fair to ask, with a decade of hindsight, what was accomplished. With the caveat that I am far from an unbiased observer, here are five areas in which I believe the Navy's focus on climate risk made a positive difference.

Changed external perception. Arguably the biggest change the TFCC made was in how the U.S. military, and the Navy in particular, was viewed in addressing an issue of future critical importance to many people around the world. Simply by directly addressing climate change as a risk and talking about it in plain, "non-Defense speak" language, many in Congress, the media, nongovernmental organizations (NGO), and the general public understood that this was an issue the Navy was serious about.

That perception extended beyond our borders. I had the opportunity and privilege to represent the DOD at the UN Conference of the Parties (COP) 15, 16, and 17, held in Copenhagen, Cancun, and Durban, respectively. One of my favorite things I did while at the COP was to walk through the nongovernmental organization halls and exhibits, while in my naval uniform. The reaction of the people, most of whom were not U.S. citizens, staffing the NGO booths, was uniformly one of surprise, interest, and respect. Simply having the U.S. military show up at these COPs and talk seriously about climate risks was a significant contribution to "soft power" and helped raise the reputation of the U.S. military with people who otherwise have almost no contact with our servicemen and women and often had negative stereotypes about the DOD.

Thanks to an aggressive media and public-speaking campaign, the Navy was also able to educate the public on its thoughts and actions regarding climate change. Both the Arctic and Climate Change Roadmaps, published in late 2009 and early 2010, respectively, were unclassified and distributed widely.⁴ In addition to using traditional methods of outreach, the TFCC engaged extensively on social media; I also participated in the first (and only) TEDxPentagon.⁵ Despite the relatively low number of views (a little over 33,000), this video seemed to have a wide impact, as many people I subsequently met referenced it frequently.

Changed internal culture. Just as important as influencing people beyond the military was the task of changing culture within the Navy and the Building. In settings both formal and informal, socializing the risks from a changing climate in terms and interests that would resonate with other officers and civilians was a daily task on the to-do list. By far, the most common reaction I received was not one of skepticism or disbelief, but rather a reaction along the lines of “I had never really thought of that before.” Interest, of course, does not equate to resources to fund a program. However, we were able to make much progress against an initial perception that this was a fringe issue, an issue out in the distant future, or of interest only to hard-core environmental NGOs. The education process was constant, and one of the lessons learned is you could not – and should not – assume a uniform starting point in knowledge or preconceived notions on this subject.

One of the truisms about the U.S. Navy, and most military services, is that for better or worse, it is a very top-down, hierarchical organization. Having the explicit backing of the CNO was invaluable. As the most senior officer in the Navy, he provided interest and top-cover to ensure his leadership would at least listen to my arguments. As the saying goes, “if the boss is interested, you are fascinated.” Leveraging this fact of life helped greatly in accelerating progress and surmounting the normal, but still formidable bureaucratic challenges in introducing any new idea into a large organization.

Started the analysis and discussion. By engaging the operational, headquarters, and acquisition components of the Navy, the Task Force was able to produce Navy-wide roadmaps with specific goals, actions, and milestones to prepare for both a changing Arctic and changing climate. These roadmaps not only led to further action, but also initiated discussions and analysis with both internal Navy analysis groups and external programs such as the General Accountability Office, Congressional Research Service, and National Academy of Sciences. The Task Force acted as both a “forcing function” and as an integration office to coordinate multiple analyses initiated by a number of organizations both within and beyond the Navy.

Funded some needed programs. While there have been no major (as in billions of dollars) programs funded directly because of the work of the TFCC, the Navy did reinvest in Arctic research through the Office of Naval Research. The Navy also

started a new program, the Earth System Prediction Program (ESPC), to seamlessly provide weather, ocean, and ice predictions from the near-term out through thirty years. The ESPC, now nearly a decade old, has been recognized in the Weather Research and Forecasting Innovation Act of 2017 as a pathfinding program for the entire U.S. government, and the National Oceanic and Atmospheric Administration has been directed to coordinate its modeling efforts with the ESPC.

Showed the way. I believe the TFCC showed the DOD and the other military services that you could have a discussion and talk openly about the issues of a changing climate and its impacts on readiness, without becoming unduly mired in the partisan and tribal debates that unfortunately surround this issue. The TFCC Arctic and Climate Roadmaps preceded the DOD's 2010 QDR and the ensuing climate and Arctic strategies issued by the DOD itself. I'm very pleased to see that both the Army and Air Force are now spending intellectual and analytic effort to determine the risks and mitigation strategies to their respective missions and forces.

In addition to leading within the U.S. military, I'm proud of the work we did, in collaboration with the Office of the Secretary of Defense, the U.S. European Command, and our Norwegian allies, to create and hold the first meetings of the Arctic Security Forces Roundtable (ASFR). Since the Arctic Council is, by charter, prohibited from discussing military security issues, we created a forum whereby all the militaries of the Arctic countries could come together in a neutral environment and discuss issues of mutual importance. One of the highlights of my naval career was cochairing the inaugural meeting of the ASFR in 2011 in Oslo. I'm pleased that even a decade after the ASFR's creation, it is still relevant and referenced in today's policy discussions.⁶

In my years since retiring from the Navy, I have continued to work at the intersection of climate change, risk, and national security. While progress is never a straight line, I have been heartened by the number of NGOs that, over the past decade, have devoted increasing resources to studying, writing, and speaking out on this topic. I am particularly pleased to observe the evolution in Congress on this issue, especially on the Republican side of the aisle.

A little-noticed, but watershed moment came in the summer of 2017 in the then-Republican controlled House of Representatives. The full House took a vote on whether to include a modest climate amendment (the Langevin amendment) into the upcoming annual Defense authorization bill. To everyone's surprise, including Congressman Jim Langevin, the amendment passed the full House, with more than a handful of Republican votes. The subsequent analysis of which Republicans voted for the measure contained another surprise: it wasn't about whether there was a military installation in their district, or even if they were directly impacted by rising sea levels. The dominant factor was how "purple" their district was turning on the issue of climate change, reaffirming former Speaker

Tip O'Neill's old cliché about all politics being local. As much as those of us who work on climate issues would like to think our facts, with our tightly constructed arguments and crisp graphics, substantially influenced the debate, it was the members' perception of the political calculations in their district that carried the greatest weight.

I have often said that while Congress will not lead on the issue of managing climate change, it can be led. And it will be led by the voters. Contrary to stereotype, almost all members of Congress are acutely in tune with their constituents. If not, they quickly find themselves unemployed. They know what their voters do – and do not – care about. When they determine that a significant number of their constituents demand climate action, we will see meaningful legislation and we will see it quickly. But first, enough people need to care enough.

That is why, in addition to spending time with congressional members and their staffs and having testified nearly a dozen times on climate-related matters since retiring from the Navy, I have given hundreds of climate-related talks around the country. If my message of pragmatic security risks to our country from climate change, combined with my background of thirty-two years as a naval officer, can reach and convince some members of the public who might otherwise tune out environmentalists, then it's worth the time sitting on an airplane and subjecting myself to the niceties of the Transportation Security Agency.

To the question posed in the title of this essay: was the Navy's Task Force Climate Change an exercise in futility, or was it setting the pace for future challenges that we know will come? I think the answer is a bit like a Rorschach test: yes, depending on how you look at it.

I'm writing as our nation is under de facto lockdown from uncontrolled transmission of the COVID-19 virus. Right now, no one knows how many people will die, what short- and long-term damage will be done to people's livelihoods, or how long this will last. The virus moves at a pace nearly three orders of magnitude more quickly than climate change (days and weeks versus years and decades). Just like climate change, the U.S. intelligence community had warned of the possibility of a pandemic. Just like climate change, those warnings were mostly unheeded. Serious actions did not happen until significant numbers of people started dying close to home. As I write, we don't know if those actions will be sufficient to control the worst of the health catastrophe. In that aspect, the TFCC likely joins the long list of Patron Saints of Lost Causes.

There is another side to this coin, though. General Eisenhower's much used saying about plans and planning may be relevant here. The fact that the TFCC forced the Navy, and the Defense Department, to think seriously, at least for a time, about the impacts of climate change to our security was, in my opinion, time well spent. Some of that culture will remain in the military, through the teachings

at the services' war colleges and recently renewed interest in Arctic operations. Perhaps the TFCC was a decade or so ahead of its time, but I do believe history's ultimate verdict will be that it was time and effort not wasted.

While I do not subscribe to the "we are all doomed in twelve years" theory of catastrophic climate change, the evidence is overwhelming that the more we can do to reduce net greenhouse gas emissions and the more quickly we can do it, the more we will buy down the risks of extreme weather and unmanageable sea level rise and ocean acidification. We will buy down those risks not only for future generations, but for us, and not only for people living continents away, but for our families, friends, and neighbors in our own communities.

After all, the ice does not care who is in power, or who is tweeting what – it just melts.

AUTHOR'S NOTE

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ENDNOTES

¹ The CNA Corporation, *National Security and the Threat of Climate Change* (Alexandria, Va.: The CNA Corporation, 2007); and U.S. Department of Defense, *Quadrennial Defense Review Report* (Washington, D.C.: U.S. Department of Defense, 2010).

² National Research Council, *National Security Implications of Climate Change for U.S. Naval Forces* (Washington, D.C.: The National Academies Press, 2011).

³ If you are wondering how the hearing turned out, see Jeremy Schulman, "Watch This Navy Admiral Destroy Ted Cruz's Climate Myths," *Mother Jones*, December 8, 2015,

<https://www.motherjones.com/environment/2015/12/ted-cruz-climate-change-pause/>.

- ⁴ Task Force Climate Change, Oceanographer of the Navy, *U.S. Navy Arctic Roadmap* (Washington, D.C.: U.S. Navy, 2009); and Task Force Climate Change, Oceanographer of the Navy, *U.S. Climate Change Roadmap* (Washington, D.C.: U.S. Navy, 2010).
- ⁵ “TEDxPentagon—Rear Admiral David Titley, USN—Climate Change and National Security,” YouTube, uploaded by TEDx Talks, <https://www.youtube.com/watch?v=7udNMqRmqV8>.
- ⁶ See, for example, Abbie Tingstad, “Today’s Arctic Diplomacy Can’t Handle Tomorrow’s Problems,” *Defense One*, January 29, 2020, <https://www.defenseone.com/ideas/2020/01/todays-arctic-diplomacy-cant-handle-tomorrows-problems/162719/>.