

COLUMN

Coronavirus, Climate Change, and a Bit of Hope

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Inspired and hopeful! Those words describe how I feel after seeing worldwide and AFS member response to coronavirus. The pandemic is of course devastating, but some good things are collateral results of a world shifting gears. The kindness, hard work, and decency of people, including fisheries professionals, are on full display. AFS members and staff are staying at home and social distancing. I see them working together to put on virtual fisheries conferences. I observe AFS staff making extremely hard decisions about budget adjustments, many of which affect their personal wellbeing, to keep AFS financially healthy. I am being contacted by fisheries biologists worldwide who are checking in on our health—some even sending masks to us to help fight the virus. I learn of AFS members who are checking remote sites alone to ensure the health of aquatic ecosystems and those who are in isolation caring for captive fish in hatcheries and aquaria and tending to important research. From personal experience, I know fisheries educators are working long hours to put entire semesters of classes online to keep fisheries student training ongoing, and fisheries students are also working hard in this new environment to learn. I am proud of the American Fisheries Society and our profession! This is how compassionate, caring, and tough people act!

Fisheries professionals are, by nature, intellectually curious people. Therefore, I would be remiss if I didn't discuss what we might learn from this for the future. Let's examine what we can use from the coronavirus pandemic and apply it to another major nemesis of the fisheries professional—climate change! Knowledge of how humans have responded to both helps fisheries professionals and others move forward.

First, Things We Need to Stop

At various times, political attempts were made to alter or silence scientific information on both these issues. Medical professionals were initially silenced in China during the initial days of the coronavirus epidemic (Osno 2020). U.S. state governors and federal agencies prevented their employees from using the words "climate change" in government reports, or scrubbed websites or communiques of climate change science information (Mervis 2017; Barron 2018). I know what you are thinking. Amazing that some of these ridiculous bans remain in place in our supposedly free, open, modern society.

Scientists who spoke openly about these issues were persecuted. Chinese police reprimanded Wuhan ophthalmologist Li Wenliang for early warnings he made to others about the COVID-19 virus (Neuman et al. 2020). Under duress, he signed a document in which he acknowledged making "false statements," but several days later, Wenliang died of the virus. Following public outcry, the Chinese government apologized (Cheng 2020). A quick Google search reveals that many

scientists in the United States who spoke openly of climate change science and evidence for the need to act were threatened, transferred, lost funding, or were fired.

Much effort has been expended treating the symptoms of each issue, because treating the root cause is either not possible now, or it is uncomfortable to address. Drugs are under development to treat the symptoms of COVID-19, and social distancing is being practiced to slow the rate of infection. Current news sources report a vaccine for the virus is approximately 18 months off. Environmental professionals often focus on "adaptation" to climate change and avoid discussing the root cause of emissions reduction, so they don't upset people or appear "political." Most climate scientists believe that addressing this root cause is how we best fight climate change. Although strides have been made in attacking greenhouse gas emissions, most climate scientists agree that these changes are happening much too slowly right now to be effective.

Failure to listen to scientists delayed action on both issues, leading to negative consequences. We are familiar with how movement forward on both issues has been delayed due to ignorance, politics, and stubbornness. Therefore, I'll spend time on the consequences. As of this writing, the worldwide number of deaths due to COVID-19 is 68,147 (John Hopkins University 2020), and by all accounts will get much worse. As of 2005, the World Health Organization claimed that over 150,000 people were dying annually due to climate warming and precipitation trends (Patz et al. 2005). Now the World Health Organization (2020) estimates that 250,000 per year will die after 2030 due to a subset of effects of human-caused climate change, a death toll that is considered a conservative estimate. We haven't even yet discussed the impacts on aquatic ecosystems!

Now for the Good News

Go science! Science professionals sounded early alarm bells for both issues. Chinese medical scientists discovered clusters of patients exhibiting pneumonia symptoms in Wuhan, China. Common bacterial and viral causes of pneumonia were ruled out and genetic tests confirmed the presence of a new betacoronavirus, COVID-19 (Huang et al. 2020). That humans could affect the climate was first postulated by Roman scholars (Neumann 1985). However, early calculations of the effects on the earth's temperature of varying levels of carbon and other greenhouse gasses in the atmosphere were conducted in 1896 by Swedish scientist Svante Arrhenius (1896), who would later win the 1903 Nobel Prize in Chemistry. Since then thousands of scientific studies have confirmed Arrhenius' findings were correct.

Increasing numbers of people are taking infectious disease and climate science seriously. Because scientific predictions are

coming true regarding both climate change and coronavirus, increasing numbers of people across society from all political persuasions are concluding that the scientific method works, and scientists are trustworthy sources of information.

The world (and AFS'ers) are banding together to fight coronavirus, which can inform our fight against climate change. We now see that world action is possible. Small groups can make a difference on large problems. Governments will listen to their constituents if they forcefully speak up. Science is accepted over time because it works!

We at AFS all have a responsibility to move forward. Climate change action was not an issue I chose lightly for my presidency. I knew it would come with not only opportunities but with consequences. I chose to focus on climate change because we are the largest and oldest scientific fisheries society in the world, and to choose an unimportant issue would be a disservice to AFS and you, our members. I chose the issue because the latest Intergovernmental Panel on Climate Change report gave a rapid timeline for action and because heat accumulates in the ocean, we cannot go back if things get too bad. I chose it because governments are best positioned to address this issue meaningfully, and elections to select or influence officials to do something about climate change would occur by late 2020. Finally, I chose this issue because I asked many members of the Society the following question and have not yet been refuted: “What issue is impacting, and has more potential to impact our fish, our aquatic ecosystems, our fisheries, and our constituents than climate change?”

Most research shows we are on the right track when we talk with others about climate change. Interpersonal conversations can be effective to convince those who do not acknowledge climate change (Swim et al. 2018; Gehlbach et al. 2019). Rebutting scientific denial is important and it can be done without negative impacts (Schmid and Betsch 2019).

One final similarity I'll discuss between the COVID-19 and climate change crises—the promises that we practitioners gave our constituencies. Physicians are compelled by the Hippocratic Oath to treat their sick patients. North American fish and wildlife professionals are bound by the North American Model of Wildlife Conservation, which states our duty is to hand intact wildlife populations down to future generations. This means we must continue to share the science and the need for action on arguably the most important issue affecting our aquatic ecosystems.

“Inspired and hopeful” are words that describe my feelings towards people’s action to defeat COVID-19. These are also appropriate words for AFS action on climate change. I am inspired by the hard work and actions of the many, many AFS members and staff to date who are working on this issue, and I am hopeful they will continue, even increase, to produce results!

The opinions and tips given here, like all my columns, are mine and do not necessarily represent AFS or my employer.

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