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Censoring government scientists and the role of consensus in science advice

A structured process for scientific advice in governments and peer-review in academia should shape science communication strategies

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Before the Second World War, science advocacy in politics was rare and usually only in the context of religious or philosophical debates. It seldom affected political decisions, elections or policies [1,2]. During the war, the technological arms race with Nazi Germany gave scientific advisors great influence over military strategy and political decisions, in particular in the USA and the UK. After 1945, many governments continued to use either permanent or ad hoc scientific advisors, who shaped both research policy and influenced political decision-making and discourse. An early example of actual political advocacy by scientists dates back to the 1964 US presidential race between Barry Goldwater and Lyndon Johnson, when "Scientists and Engineers for Johnson-Humphreys" successfully campaigned against Goldwater's pro-nuclear weapons position. Yet, even then, many scientists worried about the politicization of science, arguing that the integrity of scientific insights could only be maintained if science remained apolitical.

Notwithstanding, scientists are increasingly called upon to participate in public policy discussions. Science advocacy has become commonly involved in issues ranging from the regulation of genetically modified foods to public health policies, to understanding and mitigating the effects of global climate change. Advocacy gives scientists an opportunity to shape political discourse and provide a rational and informed perspective, but it can lead to conflict between scientific advice and government policy. Although there remains a desire to keep science separate from politics, many scientists worry that, unless they openly voice their opinion and concerns, political decisions will not reflect their perspectives and could even distort scientific findings [3,4]. For example, stem cell research was a polarizing topic throughout the 1990s and 2000s: In 1994, a scientific committee advising the director of the US National Institutes of Health devised a strategy to inform politicians who opposed funding such research about how treatments could benefit their sick family members [3]. This is perhaps an extreme example of advocating for a particular policy, as it is not the role of a science advisory committee to create strategies to lobby politicians.

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However, it is not always as clear at what point the dissemination of objective arguments turns into advocating for a policy goal. In 2009, the chairman of the UK's Advisory Council on the Misuse of Drugs, David Nutt, was dismissed from his position for having discussed in a lecture at King's College London that cannabis, LSD and ecstasy use was less harmful to society than tobacco and alcohol if a range of indicators was taken into account. The UK government contended that he had crossed the line into campaigning against government policy which had recently increased the severity of penalties for the use of cannabis. Nutt stated that he was not aware, even after his dismissal, where was the line between science and policy, or which comments had crossed it. However, his general framework for ranking drugs was given widespread support within scientific and political communities.

As private citizens, scientists are generally free to decide for themselves where to draw that line. Scientists working in academia also enjoy much freedom to voice concerns and opinions that do not necessarily reflect the official policy of their institution. In contrast, scientists working for government agencies are usually not free to speak publicly against government policies, hence David Nutt's dismissal. In general, public servants, including scientific advisors, have a conflict of interest if they lobby on behalf of a policy issue with which they are involved as advisors or participants. On the other hand, these scientists may sometimes be the only experts on a particular topic, and their informed perspective is therefore valuable to the public debate, even if that informed perspective differs from government policy.

Another, more nuanced example concerns the collapse of the Atlantic cod fisheries,

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which was a highly politicized issue in Europe and North America in the 1990s. In Canada, a government scientist was reprimanded for telling the media that the falling stocks were caused entirely by overfishing and were not the result of a combination of environmental change and predation by seals, as the government had suggested [4]. Again, the validity of the scientist's opinion was not in question, as there was ample and solid evidence to back him up. Rather, he was in trouble for contradicting the government's official position, which unlike David Nutt, he did so knowingly, and also unlike the American stem cell researchers, he did openly. Such conflicts between scientists and government policy still arise regularly, whether it is in debates about the culling of badgers in the UK or about banning genetically modified crops or pesticides harmful to bees in the EU. In each case when the policy of a government is at odds with the scientific evidence, or lack thereof, the question is as follows: What should scientists working for the government be permitted or morally obligated to do?

Such conflicts have fueled a deeply divisive debate over whether the muzzling of public servants—specifically, restricting their access to the press or social networks—is an appropriate measure to avoid situations in which government advisors openly lobby or argue against government policies. Those opposed to silencing government employees argue that in an open and transparent society, with evidence-based policies, scientists should be free to speak publically about their research and share their insights on political questions [5,6]. Proponents argue that science should stay neutral in public debates and that public servants are beholden to their employers to represent dissent-free policy messages [7]. However, such a black-and-white view ignores the diverse roles of a government scientist in a democracy and unnecessarily polarizes the debate.

Here, we attempt to clarify the differences between the role of a scientific advisor in designing policy, a researcher who publically voices concerns about a particular policy, and scientific advocacy to advance a specific policy goal. We conclude that the advice process for public policy requires some degree of censorship, given the need for confidentiality and consensus, and provides a framework for registering scientific concerns within the government. We show that this type of censorship is similar to situations within academia that are subject to self-imposed censorship or confidentiality (Fig 1).

The central question is as follows: Is a government scientist in conflict with the government if he or she has a private but conflicting opinion of a policy that he or she is also involved in implementing? If he or she is, should he or she make that conflict public? Clearly if the opinion is kept private, the scientist does not have a visible conflict. However, in a broader sense, this question exemplifies the different scales between a scientist's role as a citizen in a democracy and a government employee. Building on our earlier example of the Atlantic cod fisheries, imagine a government scientist who believes, based on scientific evidence, that a commercial fishery should be closed to preserve fish diversity. What if the government decides that the needs of the local community outweigh the need to fully preserve or replenish fish stock levels? Having made the decision to set limited quotas, rather than ban all fishing, what happens if the same scientist is then tasked with setting the quotas required? Here, the scientist is no longer being asked for an opinion on fish biodiversity; rather, the task is to provide a cohesive and defensible implementation of the policy. Given that a moratorium on fishing is no longer an option, what scientific recommendation can be made to implement a precautionary harvest of *A*%, given that the population growth rate is *B*, leading to a potentially sustainable yield based on model *C*? In this scenario, the scientific view that no fishing is preferable—whether the scientist holds this view publically or privately—has been trumped by other concerns. While some might argue against the relative merits of sustainable stocks versus short-term employment, policy is informed not just by science but also by societal, political and economic perspectives [2,8]. As such, our

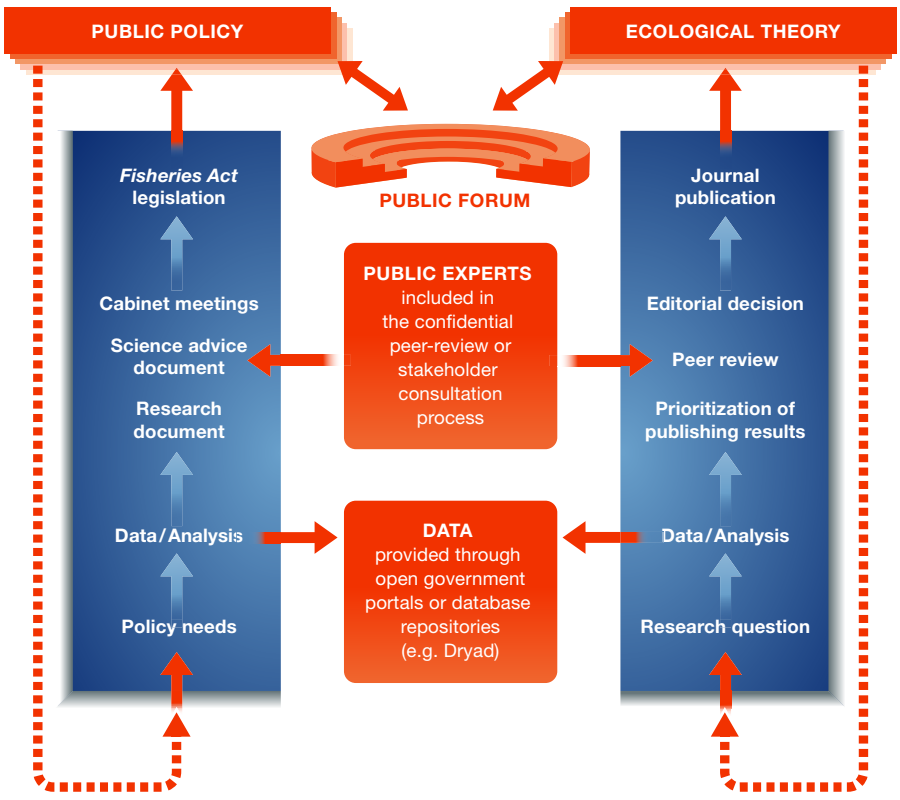

Figure 1. A representation of the process of developing, implementing or contributing to public policy or an ecological theory.
All steps within the blue boxes represent confidential interactions, and red arrows represent the flow of information among the public forum.

view is that the scientist is no longer in conflict with the government—the time for disagreement has passed—as long as the process of setting quotas is objective, empirical and based on the best scientific evidence available. This example recently played out, again in Canada, on the Pacific coast, where despite initial scientific advice to close a herring fishery, the government opened it and tasked scientists with setting a quota. Citizens sued the government, and the court overturned the policy decision ruling that more weight should have been placed on the earlier advice to close the fishery. It is important to note that it was only through this legal process that the policy was challenged, because, from a scientific perspective, an empirical and defensible precautionary harvest level could still be applied once the policy decision was made.

This example points to the most common role of science in public policy, which is not to answer *"should we do policy X"*, but instead to explain *"what will happen"*, *"what is happening"* and *"what do we know"* regarding implementing policy X. The answer to *should* is not solely in the realm of science, but is in the parliamentary process of a democracy, whereas the *whats* are scientific questions and part of a policy advisory process. The problem with this tidy delineation is that in the public forum, the *whats* and *shoulds* become blurred by how the media choose to report a statement. The effect of media reporting can be easily observed when a scientific issue initially has no policy implications and is reported out of interest (e.g. the death of honeybees), but over time develops into a public issue (the banning of pesticides) that requires scientific advice [7]. Once public and within a heated policy debate, even the most objective views will become value-laden and politicized. And so it becomes the responsibility of scientists to clearly identify in what capacity they are making their views public [6]. Outside a structured policy advisory process, a scientist is nothing more than another informed citizen expressing his or her personal views, sometimes among a cacophony of many different scientific views [1]. On the other hand, the line between informing and lobbying the public is much clearer when government scientists give their opinions within a structured policy advisory process, and here, government communication is justifiably guarded.

Within the science advisory role of answering the *whats* of implementing or advising public policy, the need for confidentiality becomes much more apparent, as does the justification for a certain degree of censorship. First, public servants may be privy to confidential information, and so they are bound by codes of ethics and privacy legislation. Second, they may be privy to information that could inadvertently give an advantage or preferential treatment to another party, which is why they must abide by conflict of interest codes. Third, the division of roles within government agencies often delegates to a scientist the authority to provide advice, but not to make a policy decision, which is instead vested to government and governance processes. This division of authority ensures that one particular perspective alone does not drive policy and, importantly, protects scientists from being personally liable for the consequences of the advice they give in designing policy. Lacking such a protective arrangement, for example, six Italian scientists from the National Commission for the Forecast and Prevention of Major Risks were sentenced to six years in prison for manslaughter for failing to give adequate warning of the 2009 earthquake in L'Aguila, Italy, even though their advice was believed by other scientific groups to be reasonable (note that they were recently acquitted upon appeal).

A critical component of scientific advice is that it should represent a consensus of scientific thought. Dissenting opinions are a natural consequence of the scientific method, where common assumptions are constantly challenged, rather than accepted. However, scientific debate occurs at different scales, and it is important to distinguish between dissent that masks greater consensus and dissent that represents insurmountable uncertainty [8,9].

In national and international fisheries policy, the science advisory processes involve peer-review secretariats who weigh scientific evidence and ultimately seek consensus to provide the public with a cohesive statement representing the governing body's perspective on a particular topic (www.dfo-mpo.gc.ca/csas-sccs/process-processus/process-processus-eng.htm). Here, the group consensus is far less vulnerable to bias than the opinion of a single government scientist. But to achieve a meaningful consensus, the group must remain in solidarity with the outcome of the process and let the scientific advice stand on its own merit. To do otherwise would invalidate the science advisory process and undermine the role of science to inform policy decisions. For these reasons, message control at the scale of policy implementation has not only legal and societal implications, but also safeguards the objective value of scientific advice. By these standards, it is not appropriate for an individual government scientist to talk to the press without officially representing the government's perspective. If a government's policy runs counter to science advice, as it did with the North Atlantic cod fishery, the publically available consensus document of the secretariat is a more robust evidence-based critique of the policy decision than the opinion of a lone scientist.

> *"... to achieve a meaningful consensus, the group must remain in solidarity with the outcome of the process and let the scientific advice stand on its own merit"*

Continuing our earlier example, there is still an extensive and publically available science advisory process on the role of gray seals in suppressing Atlantic cod stocks in Canada. The case against the existing policy is contained in these documents, and thus through the structured advisory process, the public can learn both about the scientific consensus and the varied and sometimes dissenting opinions of government scientists. Thus, scientists unhappy with policy decisions can use the advisory documents as evidence that not enough weight was placed on a particular viewpoint, without having to publically build a case against their own employer. Otherwise scientists are often left with the difficult decision to resign over disagreements with government policy, as was the case with three scientists following Professor David Nutt's dismissal in the UK and Chief Statistician Munir Sheikh in Canada over the ending of the mandatory national long-form census. While resigning may seem morally reasonable, it also represents a loss of valuable scientific capacity within the public sector, and thus a failure

of governments to effectively manage their employees.

> *"Once public and within a heated policy debate, even the most objective views will become value-laden and politicized"*

Another aspect of censorship that has recently been highlighted involves the sometimes-strict restrictions on government scientists with regard to discussing their research with the media. From a scientific perspective, this type of message control runs counter to how science enriches society: As it is not involved in safeguarding confidential material, policy design or scientific advice, it is therefore seen as inappropriate. The processes described above, and government science in general, involves the generation of data, analyses and literature reviews that become the fundamental building blocks of evidence-based policy. However, while that data are made public, the commentary from those who generated it is often not, even if the issue has very few policy implications. While the provision of context could have policy implications, scientific findings on their own are objective and do not design policy or provide science advice and should therefore be allowed as part of communication strategies.

Extending our discussion to academia, where all communications are apparently open, we actually find similar scales of public and private interactions. Academic research includes many interactions within a public forum (including the direct dissemination of raw data); however, confidential interactions also occur and are subject to a degree of self-imposed censorship. Internal conflicts within research groups or peer-review processes are generally resolved by consensus or by the will of the principal investigator or editor, respectively, so that the resulting publication puts forth a clear and unambiguous conclusion supported by all authors and informed by the reviewers. The need for confidentiality within this process is critical in order that the paper's conclusions be judged objectively on the methods, results and interpretations. It would be grossly inappropriate for active members of the research team or peer-reviewers to publically air conflicts arising in these internal processes. And so academics in some regards defer personal opinions to the judgment of colleagues or journal editors for the sake of consensus. Interestingly, liability may also be implicitly safeguarded in this arrangement, as despite the development of tools to identify and retract fraudulent scientific studies, it remains difficult to criminally charge the authors involved.

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A strong voice for science in the development of public policy is certainly needed, and if governments endeavor to hire the best scientists, their missing personal opinions and commentaries are detriments to informed public debate outside of a structured policy advisory process. Disseminating objective scientific research should be free from overburdened communication strategies, whereas the process of providing scientific advice is justifiably guarded while structured processes offer the public insights into different opinions among government scientists. Outside of these well-defined areas, the distinction between informing versus lobbying the public is difficult to identify and influenced much more by the media than by the content of a statement. For that reason, communication strategies must be designed to allow informed discussions within the public forum (i.e. media and social networks), but with clear guidelines, such that statements are marked as personal, do not reveal privy information and are clearly distinguished from ongoing science advisory processes. Some sitting governments appear to understand these nuances [5], but as policies change with new elections, there is a need to enshrine these principles in legislation and conditions of employment. We hope that this paper will help channel the ongoing debates into a more productive and narrow focus, in which both sides have their concerns addressed at their respective scales.

Conflict of interest

The authors declare that they have no conflict of interest.

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