

# Self-organization: the governance of CAO fisheries from perspective of the global commons

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Received 23 July 2016; accepted 10 September 2016

**Abstract** The Central Arctic Ocean (CAO) is a global commons, and fishes in the CAO are common property resources. If humanity does not manage this region well, then this will lead to a “Tragedy of the Commons,” an old problem in human society. However, the two existing means of commons governance, privatization and government control, are not appropriate for the CAO. This study’s findings indicate that CAO fisheries management will most likely result from a process of self-organization. The openness of the CAO and the imbalance of powers, interests and responsibilities among the states that are involved will lead to a process of self-organized governance of CAO fisheries. There are four stages in this process: competition, synergy, establishment of governing principles and mechanisms, and expansion and evolution of influence. The outcome of CAO fisheries governance will be the result of compromise among the parties as no one actor is in a dominant position.

**Keywords** self-organization, CAO fisheries, global commons

**Citation:** Pan M, Wang M. Self-organization: the governance of CAO fisheries from perspective of the global commons. *Adv Polar Sci*, 2016, 27: 159-162, doi: 10.13679/j.advps.2016.3.00159

## 1 Introduction

Parts of the Central Arctic Ocean (CAO) have been opening up over the last 15 years—particularly in the Chukchi Sea between Alaska and Russia<sup>[1]</sup>. With the summer retreat of sea ice and warming of ocean waters, fish species are moving north. Recent research has found that more than 800 commercial species are moving pole-ward at up to 26 kilometres a year, and the effect is especially pronounced in the Arctic<sup>[2]</sup>. A potential new fishing ground will appear in the near future, in the international waters of the CAO. The management of CAO fisheries will become an increasingly important issue in the Arctic governance.

In the past several years, formal diplomatic discussions about CAO fisheries have been held among the five Arctic coastal states (A5); five other participants (EU, Iceland, China, Korean, and Japan) joined the discussion in 2015. In the most recent meeting was held in Iqaluit, Canada, on 6–8 July 2016, the 10 parties again discussed the fisheries in the

CAO. “Opinions differed whether to develop a new non-binding declaration or a binding international agreement. All options remain under consideration”<sup>[3]</sup>.

However, the CAO is a global commons; therefore, managing CAO fisheries may be achieved through a global commons approach.

## 2 Central Arctic Ocean and its fish are global commons

Global commons are areas and resources beyond the jurisdiction of sovereign states. They are open for use by all countries, companies, and individuals around the world. By definition, the high seas, seabed, and subsoil beyond the limits of national jurisdiction are global commons. The CAO is a global commons, but in some documents and materials it is not identified as such, in contrast to the Antarctic. For example, the UN defines global commons as “natural assets outside national jurisdiction such as the oceans, outer space and the Antarctic”<sup>[4]</sup>.

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All states have freedoms in the CAO, including: the freedom of navigation and overflight; the freedom to lay and maintain submarine cables and pipelines, subject to rules pertaining to the continental shelf; the freedom to construct artificial islands and other installations permitted under international law, subject to rules pertaining to the continental shelf; the freedom of fishing, subject to international law pertaining to high seas fishing and depending on straddling stocks and highly migratory fish stocks; the freedom of scientific research, subject to rules pertaining to the continental shelf and marine scientific research<sup>[5]</sup>.

The CAO is a common resource, on which no political or economic unit exercises exclusive rights and is therefore not owned by any individual. Common pool resources have two characteristics: they are non-exclusive and competitive. Non-exclusiveness means anyone who uses the resources cannot prevent others from using them. Competitive means common pool resources are limited, and if used excessively, they will be depleted or even destroyed. This is the so-called "Tragedy of the Commons" that Hardin wrote about in 1968. He proposed that the natural environment, as a commons, was in danger of destruction due to the innately self-interested behavior of humanity, much as a common pasture might be destroyed by herders, each acting exclusively in self-interest. It is widely known that individual rational action can lead to collective irrationality<sup>[6]</sup>. Examples of the tragedy of the commons can be found throughout human history and some analysts believe these tragedies to be inevitable.

With climate change, global warming and the melting of the Arctic ice cap, the CAO is becoming a large, increasingly accessible common pool. Each international actor, including states, private companies, and individuals, can fish in the CAO and obtain common pool resources. Due to the lack of a unified international authority to allocate global commons resources, and also a lack of an integrative, Arctic-specific, legally binding treaty to govern the CAO, there is a heightened risk of overexploitation of renewable resources, such as fish stocks.

One explanation for the occurrence of the tragedy of the commons is that the property rights of the commons are unclear and any individual can use the resource freely and without restraint<sup>[6]</sup>. According to rational choice theory, people will use commons according to their individual self-interests. Based on this assumption, establishing rights and duties for using resources is known to resolve the tragedy of the commons because private owners are more inclined towards proper use and maintenance of resources in which they have an ownership stake. That is to say, privatization of commons and clear property rights are an effective way to avoid the tragedy of the commons.

Another explanation is that the tragedy of the commons occurs because there is a lack of effective management. Some scholars advise that the commons should be under the control of government or another such power<sup>[6]</sup>. Such a government must enforce the laws strictly and implement rigorous measures to avoid a tragedy. Thus, the solution to the tragedy

of commons will depend on strict enforcement of the law rather than personal morality or other considerations.

Unfortunately, neither approach is appropriate for the CAO. On the one hand, the resources in the CAO cannot be currently divided among countries, and it is difficult to privatize and establish property rights under such conditions. It may, however, be possible in the future.

There is also no integrative, Arctic-specific, legally binding treaty to govern the CAO. There is a general lack of interest and enthusiasm among the eight Arctic council states to create such a system at present<sup>[7]</sup>. Even under a new system or treaty on the Arctic, there is no single political entity to enforce the law strictly. There are many conventions for the high seas, but, according to the Food and Agriculture Organization, around seven million tonnes of marine life are nonetheless killed and dumped overboard every year<sup>[8]</sup>. That is the greatest weakness of the current high seas system, and insufficient punishments are imposed on those who do not comply.

### 3 Self-organization in future CAO fisheries governance

The Arctic is a complex social ecological system, in which a large number of actors are involved. To make CAO fisheries orderly in the future, all of those actors must interact closely. This self-organizing process is necessary as no one state or actor can dominate the region.

This study is based on systematic theory, which involves the study of order. Systematic theory is used to study relationships among individuals and how order is produced, operates, and collapses within a system. According to systematic theory, a system is not the simple sum of individual actions but should be considered as a whole and must be studied as such. The system itself has the power to establish an order and guide its evolution. It has the characteristics of unity, complexity, and non-linearity, which can explain the current international system well.

Global governance has been inextricably linked with systematic theory. Some renowned international relations scholars have a deep understanding of system science. For example, James N. Rosenau observed the pluralism of international relations actors and the interdependence of states after the end of the Cold War. He also argued that old international relations theories could not fully explain the vigor and vitality of the new world. Therefore, he stressed the complexity, integration, nonlinearity, and evolution of the international system<sup>[9]</sup>. He defined governance as "regulatory mechanisms in a sphere of activity which function effectively even though they are not endowed with formal authority". Furthermore, global governance "refers to the arrangements that prevail in the lacunae between regimes and, perhaps more importantly, to the principles, norms, rules, and procedures that come into play when two or more regimes overlap, conflict, or otherwise require arrangements that facilitate accommodation among the competing interests"<sup>[10]</sup>.

According to systematic theory, there are two conditions necessary for the process of self-organization, one of which is openness; that is, the corresponding international regime is open to all the states and non-state behaviors with which they share information. The other condition is an imbalance of powers, interests, and responsibilities among the states, which provides the motivation for cooperation. At present, the two conditions are emerging in the process of CAO fisheries governance.

The CAO fisheries issue began in 2007, when the United States Senate passed a resolution, to pursue an international agreement on the CAO. Since then, officials from the A5 gathered four times to discuss and negotiate, leading to the Declaration Concerning the Prevention of Unregulated High Seas Fishing in the Central Arctic Ocean, signed in July 2015 (Oslo Declaration). In December 2015, four other countries (Iceland, China, Korea, and Japan) and the EU joined the discussions, which is called A5+5 mechanisms. Conservation organizations, such as the Pew Charitable Trusts and the World Wide Fund for Nature, are also interested in the prevention of unregulated commercial fishing in the commons area of the CAO.

The powers, interests, and responsibilities of stakeholders in CAO fisheries are imbalanced. The Arctic coastal states have economic, sovereignty, military, and other interests in the Arctic, and they have corresponding responsibilities, such as ecosystem protection, maintaining the traditional ways of life of indigenous peoples, and promoting sustainable development in the region. However, the states outside the Arctic are mainly interested in economic potential and have no interest in boundary disputes or having a military presence. The imbalance of interests, responsibilities, and powers lead to cooperation between different actors. If these factors are balanced among all stakeholders, there is no incentive to cooperate.

In general, there are four stages in the self-organization process of CAO fisheries governance<sup>[9]</sup>.

The first stage is competition among actors due to different interests and ideals. First, the Arctic coastal countries competed against one other in CAO fisheries governance. Different states had different proposals and opinions for CAO fisheries management according to their interests. Some countries, such as the United States and Canada, advocated banning commercial fishing in Arctic international waters and have already prohibited commercial fishing in the 200-nautical mile EEZ; other countries, such as Russia and Norway, were against a ban. It took approximately 5 years to reach consensus on “taking interim measures to prevent unregulated commercial high seas fishing in the central Arctic Ocean as well as a commitment to promote the conservation and sustainable use of living marine resources and to safeguard a healthy marine ecosystem in the central Arctic Ocean”<sup>[3]</sup>.

The second stage in the self-organization process comprises synergistic effects due to the expansion of cooperation. This is the most important step in the formation

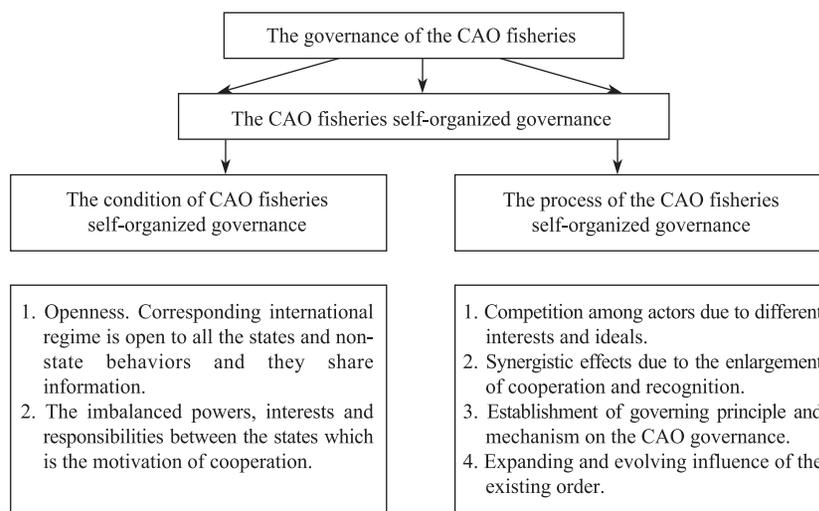
of an international system. In the cooperation process, CAO fisheries governance will gradually become more orderly. For example, the A5 will expand cooperation on CAO fisheries issues to include non-Arctic states. If all the actors are willing to compromise to reach a consensus on CAO fisheries governance, cooperation will continue. If they proceed, they will work together in a broader process to develop measures consistent with the Oslo Declaration that would include commitments by all interested stakeholders. They must reach a consensus on whom and how the fisheries will be managed, how to establish the rules and to ensure their effectiveness, and how to establish the order and other aspects of the international governance regime.

The third stage, resulting from synergistic effects, is the establishment of governing principles and mechanisms, such as a CAO fishery governance structure, and the voting mechanism and principles embodied behind the system. Environmental protection and resource development will be the main principles of CAO fishery management; the agreement or treaty on CAO fisheries governance among states, companies, and non-government organizations should set a strict limit on exploitation. CAO fisheries will be managed and developed under the principle of peace, and the signing countries and actors should follow the principle of international cooperation. The two principles will ensure CAO fisheries governance remains in a virtuous cycle and avoids the security problem such as overfishing and environment disruption in the CAO.

The last stage of self-organization is the expansion and evolution of the existing order and its influence. The order that has been formed for CAO fisheries governance will guide and control the activities of prospective signatories, who should promise to be bound by the treaty and affirm their commitment to the treaty's obligations.

The negotiation of CAO fisheries governance is currently at the second stage. The A5+5 mechanisms have convened twice thus far in 2016 and have another two meetings scheduled before the end of the year. The exact details of the arrangement have yet to be determined. Some of the actors want a legally binding international agreement, while others want a new, broader non-binding declaration<sup>[3]</sup>. But unfortunately, the ten parties have failed to agree to the terms of a moratorium on fishing in the central Arctic Ocean in the last Faroe Islands meeting from 29 November to 1 December 2016. There are some of the key points that remain under discussion for the future include: the manner in which the agreement addresses exploratory fishing; the conditions under which a decision might be made to commence negotiations on an agreement to establish one or more additional regional fisheries management organizations or arrangements for the central Arctic Ocean; and decision-making procedures. Delegations remain committed to continue negotiations with the aim of reaching agreement in the near future<sup>[11]</sup>.

I think the ten parties will soon come to a legally binding international agreement because they have no



**Figure 1** The model of CAO fisheries self-organized governance

fundamental differences for protecting Arctic ecosystem and they have very detailed issues to discuss. Once an agreement is reached, it will play a very important role in the Arctic ecosystem protection; more importantly, CAO fisheries is an interesting test case, since it is one of the first challenges this group of countries/region is working on together in this way. This A5+5 mechanisms may further extend to other issues governance in the Arctic<sup>[12]</sup>.

## 4 Conclusion

Various countries are interested in economic opportunity in the Arctic; however, they are also interested in avoiding conflict in the Arctic. For sustainable fishing in the CAO, all interested actors must cooperate. China, as a stakeholder in the Arctic and a member of A5+5, is participating in discussions on the fisheries issue. China will promote the conservation and sustainable use of living marine resources and safeguard a healthy marine ecosystem in the CAO; China will take an active part in future research into biological resources in the Arctic Ocean and contribute to understanding of the Arctic.

In her famous book *States and Markets*, Susan Strange noted that “Social science can never confidently predict because the irrational factors involved in human relations are too numerous and the permutations and combinations of them are even more numerous”<sup>[13]</sup>. However, previous developments indicate that future CAO fisheries management will involve a process of self-organization on the part of interested actors. These state and non-state actors are already engaged in the process of self-organization at present, and are specifically at the second stage of this process, where they are experiencing synergistic effects of cooperation. The outcome of CAO fisheries governance will be the result of compromise among the parties who must work together as none is in a dominant position.

**Acknowledgments** I thank Dr. Henry P. Huntington for giving good advice and helping to revise the paper. I also think Peter Harrison and Scott

Highleyman for ideas and encouragement, and Professor Xia Liping for encouragement. This paper is one of the research results of the project “A Survey on the Attitude of the Indigenous People in Alaska to Economic Development Activities in the Arctic Region and the Path of Cooperation between China and the United States”, funded by the Chinese Arctic and Antarctic Administration. It is also part of the project “Chinese Polar Environment Comprehensive Investigation and Assessment Program” (Grant no. CHINARE2016-04-05-01) funded by the State Oceanic Administration of China

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