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Short Communication

A precautionary approach to fisheries in the Central Arctic Ocean: Policy, science, and China

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ABSTRACT

In recent years, up to 40% of the central Arctic Ocean has been ice-free in summer. This open water makes access possible for ordinary vessels, including fishing boats. The five Arctic Ocean coastal states (Canada, Denmark/Greenland, Norway, Russia, and the United States) have agreed to develop an international agreement to prohibit unregulated fishing in international waters of the central Arctic Ocean. Non-Arctic countries, including China, and regional organizations such as the European Union will be invited to join the ensuing negotiations. Participation would strengthen China's interest in Arctic affairs in a cooperative fashion, in contrast to a perception that China is interested solely in extracting Arctic resources and is thus a competitor with Arctic states. China's scientific capacity, including the icebreaker *Xuelong* (Snow Dragon), provides it with an opportunity to practice marine and polar science diplomacy and to contribute further to Arctic cooperation and collaborative understanding. The precautionary approach of managing resources before extraction begins may make cooperative actions easier, as no one yet has a stake in the resource, and could provide a model for other regions that are developing international mechanisms for governance of international waters.

1. Introduction

The waters of the central Arctic Ocean (Fig. 1) have been increasingly ice-free in summer for the past 15 years, particularly north of the Chukchi Sea, off the coasts of Russia and the United States [1]. In the summer of 2012, as calculated from National Snow and Ice Data Center data, 40% of the international waters of the central Arctic Ocean (CAO) had less than 15% ice cover, thus appearing as open water in maps of sea ice extent. For the first time in human history, a new ocean is opening up [2]. And as warming continues, the likelihood of an ice-free Arctic in the next few decades becomes greater [3].

With the summer retreat of sea ice and warming of ocean waters, fish species are moving north [4], including in subarctic waters [5]. The combination of open water and north-moving fish raises the prospect of Arctic fisheries, though it remains unclear which species might move into the waters of the CAO, in what numbers, and when [6]. The management of fisheries in the CAO, beyond national jurisdictions, has nonetheless become a more pressing issue in Arctic marine governance. In July 2015, the five Arctic coastal states signed the "Declaration Concerning the Prevention of Unregulated High Seas Fishing in the Central Arctic Ocean," including their intent to create a broader international agreement on the same principles.

But CAO fisheries governance is not only about fishing. It has many other aspects, such as cooperative governance of the Arctic, the relations among Arctic states, and the relations between Arctic and non-Arctic states. The sequence of events surrounding CAO fisheries may provide a novel opportunity for countries such as China to become involved cooperatively and constructively in Arctic affairs. By acting in advance of any fishing activity and any negative impacts to fish stocks, a CAO agreement creates an unusual pathway for participation on the basis of caution rather than reaction. Such an agreement is thus a question of policy, science, and international relations.

With these themes in mind, this paper explores first the interactions of policy and science concerning the CAO, noting that in this instance policy is leading science rather than the reverse. Then it examines China's interest in the CAO and its evolving role in Arctic affairs, including Arctic science as a form of diplomacy. It concludes with observations on the implications of China's participation in CAO fisheries discussions as a symbol of the potential shift towards greater international involvement in the development and management of Arctic resources.

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Fig. 1. The central Arctic Ocean (CAO), international waters more than 200 nautical miles from any coast.

2. Fishing, science, and policy

Typically, issues are raised as societal or economic ones, which in turn generate political interest, resulting in policy planning and eventual policies. Fisheries in the international waters of the Bering Sea, the so-called Donut Hole, demonstrate this pattern. International fishing fleets operated in these waters, eventually attracting attention from American fishers who feared that unregulated fishing could undermine management of pollock (*Gadus chalcogramma*) in U.S. waters. Their economic concerns led to a U. S. policy supporting an international agreement for the Donut Hole. The Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea was signed in 1994, too late for the pollock stocks that were by then depleted and have yet to recover to levels that would sustain a fishery [7]. Scientific efforts helped identify management targets for the Donut Hole stock and continue to support sound management of pollock harvests in U.S. waters [8].

By contrast, the CAO fisheries issue began as a policy matter, as the United States Senate passed a resolution in 2007, directing the U.S. government to pursue an international agreement for the CAO. The resolution was signed into law in June 2008 and is based on the same logic that supported the U.S. Fishery Management Plan for the Fish Resources of the Arctic Management Area, which established a catch quota of zero for U.S. waters in the Chukchi and Beaufort Seas until there is sufficient information to support an economically and environmentally sustainable fishery [9]. This approach was also taken by Canada for its portion of the Beaufort Sea in 2014 under the Beaufort Sea Integrated Fisheries Management Framework, where new commercial fisheries will only be considered after research has shown surplus and sustainable stocks [10]. Rather than being driven by scientific findings or by unsustainable or unmanaged activities already taking place, the policy-driven approach is based in part on the lack of scientific information concerning fish stocks and ecosystem dynamics in the CAO.

One challenge in this approach is the potential lack of incentive to act before there is clearly a problem to address. Some countries and some scientists considered a CAO fisheries agreement unnecessary or not urgent, on the grounds that there was no fishing taking place nor any evidence that such a fishery might begin in the foreseeable future [6]. There has been little advocacy by non-governmental organizations, other than the Pew Charitable Trusts [11]. These circumstances also meant that no one has a stake in