



**PCRC-ArCS Special Sessions on post-ArCS research agenda for Arctic legal and policy studies
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Fish going North: new routes, new trade, new disease in the Arctic

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ABSTRACT

ArCS aims to utilize science in the delivery of information to promote appropriate decisions and to foster Japanese presence in international law for the sustainability of the Arctic.¹ Identifying a research agenda that stems from science, utilises Japan's space as both an Arctic gateway nation and a collaborator in the Arctic, puts fish pathogenesis and its relationship to trade and health in the North an important research agenda. Not only does this build upon Japan's record in marine science initiatives but also fills a gap in global collaboration for aquatic medicine, across industry, local livelihood, underutilised individual skills and conservation.

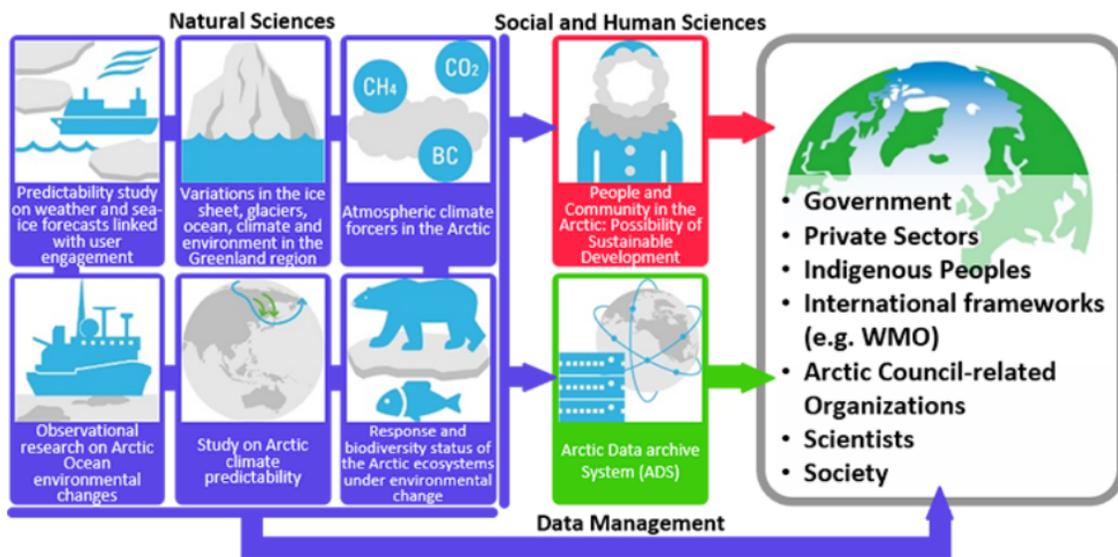
Marine Arctic species have been and are continuing to be heavily impacted by climatic shift which is altering the Arctic marine faunal barrier. Global trade in fish is estimated in 2019 as 177.8 million tonnes (FAO) making an understanding of the shifts in disease parameters for this taxa of high significance to continued trade.

Migratory fish stocks pushing the northern boundaries bring in new pathogens to which naïve endemic populations are not exposed including local aquaculture. Warmer waters spells new opportunities for diversifying fish farmed with warmer water species thus placing additional burdens on wild fish stocks. Arctic research has shown that emerging pathogeneses in the High North, through species translocation and increased human activity, are occurring as warming temperature increases access to fragile and previously remote areas, altering the species dynamic and testing the resilience of local species. The aim must be to understand pathogenic transmission through piscine, cetacean or other marine life during a time of shifting disease boundaries.

¹ The Second International Advisory Board of Arctic Challenge for Sustainability (ArCS), 5. Issue date March 2019, ArCS secretariat, National institute of Polar Research (NIPR) 10-3, Midoricho, Tachikawa, Tokyo 190-8518, Japan.

Building on Japanese experience in Arctic climate, sea-ice and weather forecast, places the National Institute of Polar Research in position to expand into water temperature and nutrient recording. Understanding Arctic biome shifts are an important step to understanding emerging issues with fish species as the Arctic faunal barrier begins to change. Organisational networks, systems for data aggregation and individuals with relevant skills are needed to build data. Areas of thematic concentration including biodiversity and ecosystems in the Arctic facing change (Theme 6, NIPR) and the Arctic Data Archive System (ADS) (Theme 8, NIPR) provide a solid foundation. Japanese marine arctic science initiatives in collecting scientific records may also be applied to aggregating field-based data to understand evolving pathogeneses.

Understanding translocated and emerging pathogeneses in the Arctic is important not simply from a health and disease perspective but also because disease in livelihood products will effect local Arctic and sub-Arctic peoples. Fish and fisheries comprise a large part of the diet of Arctic and sub-Arctic peoples. Both the local livelihood dimension and the inherent value of our endemic fauna needs to be remembered in any formulation of law and policy research in the Arctic. Devising legal mechanisms for monitoring unregulated areas needs to tread softly whilst climate shift is altering the pathogen-host-environment dynamic.



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