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**2022 IYS Pan-Pacific Winter High Seas Expedition: Exploring ocean ecosystems in a changing climate**

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Pacific salmon are an important cultural, commercial, and biological resource for Canada and other countries of the North Pacific rim. As conditions become more and more variable and returns continue to decline, the need to understand factors affecting salmon during all life history stages intensifies. Currently, very little is known about factors affecting Pacific salmon when in the high seas. The North Pacific Anadromous Fish Commission (NPAFC) with its five member countries (Canada, Japan, the Republic of Korea, Russia and the United States) is planning a Pan-Pacific High Seas research expedition to survey the North Pacific Ocean in the winter of 2022. Originally scheduled to occur in the winter of 2021, given the challenges of completing an international survey during the pandemic, the difficult decision was made to postpone the 2021 multi-vessel research expedition. However, this challenge has brought new opportunities to the IYS to bring more partners on board, and to continue building momentum and raising funds to ensure a successful Expedition in 2022. This presentation will build upon the presentation given at the 2020 Salmon Ocean Ecology Meeting, providing more insight into the planning process for the expedition and soliciting feedback on research planning. The overarching objective is, "To demonstrate the utility of an international pan-Pacific winter ecosystem survey to understand how increasingly extreme climate variability in the North Pacific Ocean and the associated changes in the physical environment influence the abundance, distribution, migration, growth, fitness and survival of Pacific salmon and surrounding species." We have been working with a group of scientists from around the Pacific Rim to develop a set of four sub-objectives: (1) determine species and stock-specific ocean distributions and relative abundances, and condition of juvenile, immature/mature Pacific salmon within the study area, and factors/mechanisms controlling them, (2) document the spatial and temporal variation in physical and biological oceanographic conditions, (3) document the distribution, condition, and standing stocks of zooplankton, and nekton that serve as the prey base for Pacific salmon and associated marine fishes, and (4) demonstrate that ability to effectively collaborate across the five NPAFC Parties and our partners to conduct integrated ecosystem research that will support the sustainable management of salmon in a rapidly changing North Pacific Ocean. Work on a set of research plans and protocols to be undertaken by all vessels is ongoing. Information from the high seas will ultimately be connected with freshwater and coastal data to give a clearer picture of challenges Pacific salmon face throughout their life cycle. We will share our progress to date and discuss the information which is expected to emerge from this research, and we encourage critical input from the audience during the discussion period.