Proposal for a workshop at the International Symposium on
"*Climate Change Effects on Fish and Fisheries: Forecasting impacts, Assessing Ecosystem Responses, and Evaluating Management Strategies"*
April 2010, Sendai, Japan

1. Title

Salmon Workshop on Climate Change (SWOCC)

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3. Description and Objectives

The North Pacific region is home to multiple species of salmonid fishes, including anadromous Pacific salmon that regularly migrate from freshwater to the sea and back. Salmon provide economic benefits in the form of subsistence, commercial, and recreational fisheries, and contribute to the cultural enrichment of the regions where they occur. Their ecological role is complex as they facilitate energy transfer directly and indirectly at multiple trophic levels in many ecosystems. Their ability to occupy habitats in fresh, salt, and brackish water has led to a remarkable diversity of life histories, but climate change threatens to alter their distribution and abundance.

Salmon are found most frequently in cooler regions of the Pacific Ocean. In recent years, commercial catches have been among the highest on record, with no indication of declines. For instance, 2007 catches exceeded 1 million tonnes, with pink and chum salmon constituting 51 and 31% of the catch by weight respectively. Yet coho, Chinook, and some sockeye salmon populations are declining in many areas.

This one-day workshop will examine scenarios for the future of Pacific salmon, based on climate projections from coupled ocean/climate or other models or from statistical projections of expected climate changes. The workshop will emphasize regional scales that are believed to be of particular importance. For example, global warming may enhance oceanic conditions for some species in some regions, while diminishing them for others. A good understanding of potential interactions between regional physical and biological processes is critical for accurate projections of such regional responses. The workshop will provide an opportunity to examine whether the responses of salmon populations to climate change will differ among regions, and what the mechanisms might be.

Although the workshop will focus on salmon in the North Pacific due to limited time, participation by researchers working on salmon in the North Atlantic is encouraged. The morning will be spent on key papers and possibly poster presentations. The afternoon will consist of several focused panel discussions considering important questions such as some of the ones suggested here:

1. Forecasting Impacts
    a. Do we expect the North Pacific to remain at the current high levels of salmon production?
    b. How will climate change affect salmon differently in various regions?
    c. Will sustained warming have an opposite effect on productivities of northern and southern salmon populations? Are the southern and northern limits to the range of salmon shifting northward?
2. Assessing Ecosystem Responses
    a. Is the North Pacific ecosystem changing to favour pink and chum salmon?
    b. What mechanisms are most likely responsible for changes to salmon distribution, production, and relative species composition?
3. Evaluating Management Strategies
    a. What advice can science provide managers in terms of adapting fisheries to anticipated impacts of climate change?
    b. What are priorities for long-term research and monitoring?

Papers will be required by 28 May 2010. Following peer-review, selected papers from this workshop will be considered for inclusion in the symposium volume; a special issue of *ICES Journal of Marine Science* scheduled for publication in 2011, within a time-frame that will allow it to be considered by the Fifth Assessment of the Intergovernmental Panel on Climate Change (IPCC).

If you are interested in submitting an abstract to the workshop and for consideration to the special volume, please note that the registration and abstract submission deadline is 30 November 2009. As the number of oral presentations will be limited, indicate if you would consider presenting a poster. You can register and submit your abstract at the symposium website, indicating that you wish it to be considered for the SWOCC workshop:

http://www.pices.int/meetings/international_symposia/2010/cc_effects_fish/

4. Anticipated Outcomes/Products

We anticipate to receiving 6-10 manuscripts from our morning session, as well as documentation from the afternoon panel discussions that we would like to have considered for inclusion in the symposium volume; a special issue of *ICES Journal of Marine Science*. A short summary report will also be prepared that will include the list of workshop participants, agenda, accepted abstracts, and main conclusions and outcomes.