

Opening Remarks
PICES 27th Annual Governing Council Meeting
Yokohama, Japan
November 3, 2018

Carmel Lowe
Canadian Governing Council Member

Mr. Chair, Governing Councillors, PICES Secretariat and other guests,

On behalf of Canadian Council member, Dr. Arran McPherson, who sends her regrets as not being able to attend, and our colleague Lesley MacDougall, it is our pleasure to be with you at this PICES 27th annual meeting. I would like to begin by extending our sincere appreciation to the hosts of this year's meeting – Japan, to the local organizing committee, the management and staff at Japan Fisheries Research and Education Agency and the PICES Secretariat for making this event scientifically stimulating and memorable. The venue has been excellent, the organizing and running of the event flawless and the science that we have heard throughout the meeting of very high quality.

In my opening remarks last year, I commented that Canada was very concerned with the changes in ocean conditions and biological resources that are occurring in our marine environments and the direct and indirect impacts these changes were having on the ecosystem services they provide to our citizens, and in particular, our Indigenous Peoples and rural coastal communities. This concern has not changed in the intervening year. During the last year we continued to document species not seen previously or very rarely seen in our waters, as well as dramatic shifts in the abundance, spatial and temporal distribution, and health of many of our native species. In our Pacific waters several species were assessed as 'at risk' or 'threatened', and there were emergency listings of two species that are perilously close to extinction.

And here at this meeting we heard about similar observations of species assemblage and biodiversity shifts. We heard about changes in habitat complexity, changes in dominant species, reductions in apex species, changes in pathogen pressures that are being observed in environments across all parts of the Pacific basin. In some cases these changes were projected, in others they were not. The causes of these changes are multiple but climate and environmental factors are recognized as key drivers. Multiple stressors and cumulative effects interact in complex ways – they can be additive, synergistic or antagonistic – and often lead to unexpected consequences. In some cases the characteristics that we may think will improve species adaptability – for example a rapid generation time – may not be enough to guarantee resilience.

To understand biological responses to changing climate and environmental conditions requires observations of multiple parameters at different spatial and temporal scales, integration and synthesis. PICES is a unique and powerful enabler of these activities across the political boundaries of the North Pacific. The theme of integration, collaboration and cooperative research and communication has been strongly propagated throughout this year's meeting and the fruits of many successful multi-disciplinary and multi-national collaborations have highlighted the value of us joining together to tackle issues affecting this basin we share. The case studies presented in the FUTURE project presentation in the opening plenary are noteworthy examples of this.

At this meeting we also heard about the progress that has been made across many fronts to develop new tools that will allow us to fill key gaps in our scientific understanding related to these issues. Some of the most exciting for me have been the recent developments in stable isotope analyses of otoliths and genomics that are providing us insights into the history of environmental conditions species have encountered during their various life stages and the application of fibre optic technology to provide new windows into the mechanisms that drive productivity in some marine ecosystems.

But we also heard of some outstanding challenges we face. Of particular importance is our need to strengthen collaborations and partnerships with economists and social scientists in order to better understand the role of people in driving environmental change as well as mitigating and adapting to its impacts. The Human Dimensions Committee – although still relatively new - has made some initial progress in this area but we need to find ways to accelerate and propagate their efforts. We also need to find better ways to communicate the relevance of PICES's achievements to local, national and international policy makers so they can take appropriate actions.

The RFMO's operating in the North Pacific are acutely aware of the need to incorporate environmental change into their stock assessment and management advice but most lack the expertise to do this and are reaching out to PICES and others for support. NPAFC's International Year of the Salmon initiative is one such example. I believe it is important that PICES be responsive to these requests for our expertise, and be proactive in reaching out to other priority end users of our science to ensure they understand the implications of our findings and that we are delivering products that are useable for their purposes. In addition to our regular business agenda, I look forward to discussing these issues with you during the next two days as I believe these discussions are central to sustaining the relevance of PICES into the future and ensuring continued support for it from our governments.

Thank you Mr. Chair and colleagues.

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Antao Wang
China Governing Council Member

Dear Chair, Distinguished members of the Governing Council of PICES and Executive Secretariat of PICES,

It is my great pleasure to participate in the 2018 PICES Annual Meeting. On behalf of the Ministry of Natural Resources of the People's Republic of China, I'd like to extend my sincere appreciation to the Government of Japan, City of Yokohama, Fisheries Agency, Japan Fisheries Research and Education Agency as well as the PICES Secretariat for your thoughtful arrangement and great effort made for hosting this Annual Meeting.

The oceans comprise the largest ecosystem on earth, contributing valuable assets for human survival and a common arena for sustainable development. The North Pacific Ocean hosts the strong interactions between oceans and atmosphere, which shapes the mid-latitude climate and weather from East Asia to North America. Thus the changing North Pacific is the critical component in the global climate variability and change. Furthermore, North Pacific hosts the important marine biology resources such as fish. The fish stock assessment is vital to maintain our sustainable development. However, our knowledge about the changes and linkage between the ocean environment and marine ecosystem/resources is far from sound. To address all these changes, PICES provide an ideal platform for the communication and cooperation among the scientific researchers as well as the policy-makers in the region.

China pays much attention to the changing North Pacific Ocean and its role in the hemisphere/global climate, and the complex interactions among the physical, biological and biogeochemical processes there. We are coming to the era when the multidisciplinary study is a "must" to fill the knowledge gaps between the independent discipline study. China is willing to take an active part into the regional cooperation with PICES members and we would be happy to see any outcomes from such brainstorming so that the integrated North Pacific Programs towards sustainable development goal could be planned and the better understanding of oceanic social-economic impacts could be reached.

I wish a full success of the 2018 PICES Annual Meeting.

Thank you.

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Toshiaki Kobayashi
Japan Governing Council Member

Mr. Chairman, Madame Past Chair,

Distinguished members of the Governing Council of PICES,

It is indeed a great pleasure for Japan to host the PICES 2018 Annual Meeting including the GC meeting here in Yokohama with the participation of you all. On behalf of the Japanese delegation, I would like to express my sincere welcome and appreciation to the PICES Members and the Secretariat of PICES.

This summer, Japan experienced a record heat wave. We were hit also by several large typhoons and by unusually heavy and torrential rain that brought about extensive damage across the country. It is pointed out that the high seawater temperature is related to the growing magnitude of the typhoons.

In recent years, the volume of the fish catches of seafood popular to the Japanese has reportedly decreased due to the changes of fishing grounds. I suppose that similar phenomena are happening to some extent in all the countries of the Pacific Ocean.

The future of the seas and oceans has become a deep concern to the international community. The health of oceans is included in the Sustainable Development Goal 14 of the United Nations and has been discussed in the framework of G7 and G20, protecting the marine environment always belongs to one of the biggest agenda.

In such a situation, it is meaningful that the PICES Annual Meeting was held on the theme of “Toward integrated understanding of ecosystem variability in the North Pacific” and active discussions were held in various science sessions. We realized once more the importance of collaboration and cooperation among researchers and scientists of the PICES member countries in order to deepen our understanding of marine ecosystem variability in the North Pacific. That will lead to a better understanding of marine ecosystem variability in the North Pacific and eventually to a more sustainable use of the fruits of the sea

Lastly, I hope that today's and tomorrow's discussion of the Governing Council Meeting will further promote the mutual understanding of the member countries and contribute to the future activities of PICES.

Thank you.

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Mr. Haengnok Oh
Korea Governing Council Member

Mr. Chairman, distinguished delegates, PICES Secretariat and other guests.

It's great pleasure to be here, a beautiful and historic harbor city, Yokohama, as a delegate of the Republic of Korea. On behalf of the Korean Government, I would like to extend my sincere appreciation to the Japanese Government and the PICES Secretariat for all their efforts in organizing the PICES annual meeting this year.

With regard to the main theme of this meeting, "Toward integrated understanding of ecosystem variability in the North Pacific", the Korean government acknowledges the importance of knowledge sharing and cooperation among scientists on the issues such as climate change and its profound impact on the marine ecosystem.

Today, we face many challenges in our marine environment. First of all, climate change is one of the most important issues whose magnitude is fully recognized. This summer, Korea experienced the all-time heat record in Korean weather observation history. The impact of climate change, including unpredictable weather condition and rising sea levels, is changing our daily lives, which requires united actions.

Also, marine litter comes now as a global issue that requires change in our daily habits. While we are already influenced by the notorious quality of marine litter in our health and its subsequent economic losses, it is fortunate that the global awareness of this serious problem is increasing.

PICES is an international organization with a clear regional target, the North Pacific, where major countries have joined in and out of the region for many years. I hope that PICES will solidify its reputation in the coming years as a platform to discuss marine environment issues and explore schemes handling other global issues leading to collective responses. We wholeheartedly support all the relevant research projects of PICES member countries.

Besides, I would like to inform that the Korean government actively engages in "UN Decade of Ocean Science for the Sustainable Development" led by IOC of UNESCO to which PICES is also making

contributions. My government will also do its utmost to promote information sharing related to the North Pacific.

Once again, let me thank the PICES Secretariat and all concerned for your efforts in arranging this event. I hope the PICES 2018 annual meeting will produce successful outcomes.

Thank you for your attention.

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Oleg Bulatov
Russia Governing Council Member

Dear Chairman, distinguished delegates from participating countries, ladies and gentlemen!

On behalf of the Russian Federation, we would like to thank our colleagues from Japan for hosting the 27th PICES Annual Meeting in Yokohama, the largest and one of the most beautiful sea ports in Japan.

The Local Organizing Committee together with PICES Secretariat did a fantastic job to organize and run the meeting. As we all know, this annual meeting was extremely large in terms of participants: over FIVE hundred attendees from 16 countries and 22 international and regional organizations and programs. Now we can say that the meeting was a success from both science and organizational standpoints.

During its history, PICES provided a solid background for a deep understanding of highly variable marine ecosystems of the North Pacific Ocean and its marginal seas by providing an open forum and bringing up together researchers from different fields of marine science. Numerous highly professional and interesting talks, which were presented at this meeting, were based on a series of observations on physical and biological parameters and utilized a variety of modern approaches.

PICES is very effective in establishing fruitful relationships with its strategic partners IOC, ICES, NOWPAP, NPFC, and NPAFC. Our organization also pays much attention to capacity building by involving new generations of young scientists into its projects and activities.

During this meeting, our community was involved in productive discussions related to the activity of PICES flagship science program FUTURE, which is aimed at a variety of issues, including delivering science products to a wide audience of PICES nations.

We believe that the remaining two days of the meeting will proceed in a productive manner.

Thank you.

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Cisco Werner and Enrique Curchitser

U.S.A. Governing Council Members

Mr. Chairman, Secretary and fellow General Council members:

We begin by thanking Japan, the City of Yokohama, and the local organizing committee from the Japan Fisheries Research and Education Agency (FRA) for their warm welcome and for graciously hosting the PICES 2018 Annual Meeting. We also recognize the PICES Secretariat for its – as always – excellent organization and execution of every aspect, no matter how large or small. Everyone exceeded the high-bar they set for themselves. Again, on behalf of the U.S., we extend our heartfelt congratulations and thank you to all.

The importance of scientific understanding in decision-making was expressed clearly in the opening remarks of the various dignitaries, as well as a recurring theme in the meeting's sessions. Over the past years we have observed warming of the oceans (e.g., Prof. Tomowo Watanabe-san's opening keynote) and are now beginning to understand in a truly integrated manner the impacts at various spatial and temporal scales (e.g., Dr. Steven Bograd's FUTURE's plenary).

Continued warming of the oceans has affected decision-making more quickly than we anticipated. The recent acceleration and rapid intensification of hurricane Michael in the Gulf of Mexico, and typhoon Yuta in the western Pacific are two examples of extreme events that have been directly related to changing oceanic conditions. Marine ecosystems are also changing rapidly, with several case studies discussed in this year's sessions including the precipitous decline in recruitment of Pacific cod in the Gulf of Alaska and sustained – several months long – occurrences of harmful algal blooms off Florida's west coast. The rapid development of these events compresses the time for decision-making and renders preparation for their economic and social impacts challenging.

A clear message from these observations is the increased importance of improving the accuracy of forecasts at subseasonal (i.e., weeks) to seasonal (i.e., several-month), i.e., S2S time-scales. S2S scales present fundamental scientific challenges in the atmospheric and ocean sciences in bridging projections/forecasts of short-term (weather) scales and longer-term (decadal to climate) scales. The same S2S scales are of great

importance to predicting ecosystem variability, assist fisheries managers, and ultimately the economic well-being of our coastal communities.

PICES is well positioned to continue its leadership in each of these emerging issues within its defined convention area of the North Pacific. At the same time, PICES should be ready to contribute its science to neighboring areas such as the Arctic, where changes and impacts are occurring at unprecedented rates. And, with the upcoming UN International Decade of the Ocean, PICES has an opportunity – perhaps even the charge – to participate as a lead science organization in the North Pacific.

We take the opportunity to thank Dr. Hiroaki Saito for his continued service as Chair of the Science Board and congratulate Dr. Vera Trainer as the Science Board Chair-elect. Dr. Trainer, based in NOAA's NWFSC, is a leading expert in the study of harmful algal blooms (HABs). While Dr. Trainer will oversee the broader activities of Science Board, her knowledge of HABs and their impact on marine ecosystems will be an important asset as PICES continues its studies of understanding, detecting, predicting the occurrence of HABs, with the ultimate goal of protecting human health and the economies of coastal communities that depend on a healthy ecosystem.

At the same time that we note upcoming transitions in Science Board, we take the occasion to mention that we are entering advanced stages of the FUTURE program. FUTURE has been successful and made significant contributions integrating the climate system, process studies, marine ecosystems, and human systems. We extend our congratulations to FUTURE's leadership and thank them for their dedication. We are ready to continue to support FUTURE as it assesses and evolves its objectives (e.g., the establishment of WG 36 on Ecosystem Reference Points and WG 40 on Climate and Ecosystem Predictability developed to fill research gaps, and WG 38 on Mesoscale and Sub-mesoscale Processes related to important S2S time scales).

On behalf of the entire US delegation, we again thank Japan, the City of Yokohama, and the FRA local organizing committee for hosting this year's meeting, and the PICES Secretariat for another successful event.

Thank you.