

## **Report of Working Group 34: Joint PICES/ISC Working Group on *Ocean Conditions and the Distribution and Productivity of Highly Migratory Fish***

The third meeting of the Joint PICES/ISC Working Group on *Ocean Conditions and the Distribution and Productivity of Highly Migratory Fish* (WG 34) was held from 14:00–17:00 on Sunday, October 28, 2018 in Yokohama, Japan, under the chairmanship of Dr. Gerard DiNardo (USA) and Dr. Chi-Lu Sun (ISC/Chinese Taipei). There were 5 members and 5 observers in attendance (**WG 34 Endnote 1**). The meeting focused on progress and future plans for the working group, including potential topic session proposals for the 2019 meeting to be held in Victoria. Shown below are the agenda items (**WG 34 Endnote 2**), and related notes from the meeting.

### AGENDA ITEM 3

#### **Background and progress**

Dr. DiNardo gave a presentation summarizing the rationale and background behind the formation of WG 34. The overall aim is to incorporate climate variability into stock assessments and management decision making, via collaborations between scientists from PICES and the ISC. The initial focus of the WG was on North Pacific albacore (see Terms of Reference on [WG 34 webpage](#)), but working group activities have since broadened to include other highly migratory species (HMS). Although the WG planned to hold 2 workshops through PICES, and 1 through the ISC, the latter proved too difficult with travel restrictions, and so all meetings have been conducted through PICES. Thus far, two workshops (2016 and 2017), and one topic session (2018) have been held at annual meetings.

Overall, the WG is on track in terms of workshops, but less progress has been made on producing publications. However, some recently published papers will be added to the WG website, and more are in preparation. It is not clear if grey literature publications can be included (*e.g.*, stock assessment and ISC reports). These may constitute a significant portion of the output from the WG, as the Terms of Reference are more management-based. Clarification will be sought from the PICES Secretariat.

### AGENDA ITEM 4

#### **Future plans**

A one-year extension of the WG has been granted by Governing Council, extending group activities through October 2019. It was agreed that a topic session at the 2019 Annual Meeting in Victoria, Canada, would be a good way to highlight group activities/accomplishments, and a proposal was submitted (see Agenda Item 5). To attract a broader audience, it was suggested that the topic session proposal focus on Ecosystem-Based Fisheries Management (EBFM) for pelagic species generally, potentially with co-sponsorship with S-MBM, as bycatch issues are central to management of many highly migratory species (HMS). The particular difficulty in applying EBFM to HMS was highlighted by stock assessment scientists in attendance, and so the importance of including assessment scientists from multiple agencies (*e.g.*, NOAA, IATTC, NRIFS) in the 2019 topic session was emphasized. It was agreed that including a panel discussion involving fisheries scientists and managers at the 2019 topic session would be highly beneficial.

AGENDA ITEM 5

**Next steps**

A proposal for a Topic Session on “*Application of EBFM in the 21st century: progress and challenges in pelagic systems*” (**WG 34 Endnote 3**) at 2019 PICES-2019 was submitted for consideration by Science Board. In addition, the potential for a future international symposium on incorporating environmental and climate variability into the management of HMS was discussed. This could be held in the second half of 2020, with potential support from the ISC, PICES and other sponsors. Presentations covering all oceans, and all Regional Fisheries Management Organizations (RFMOs) would be solicited.

**WG 34 Endnote 1**

**WG 34 participation list**

Members

Gerard DiNardo (USA, Co-Chair)  
Shingo Kimura (Japan)  
Barb Muhling (USA)  
Chi-Lu Sun (Chinese Taipei, Co-Chair)  
Steve Teo (USA)

Observers

Evan Howell (USA)  
Kyung Tae Jung (Korea)  
Dr Kim (Chinese Taipei)  
Hidetada Kiyofuji (Japan)  
Michael Seki (USA)

PICES WG members unable to attend

Canada: Zane Zhang  
China: Siqing Chen, Zuozhi Chen, Heng Zhang,  
Ping Zhuang  
Korea: Youjung Kwon, Sung-II Lee

**WG 34 Endnote 2**

**WG 34 meeting agenda**

1. Welcome
2. Introductions
3. Background & progress (purpose, duration, membership, *etc.*)
4. Future plans: dissolve or extend for another year? Workshop or Session Topic, International Symposium
5. Next steps: Reporting (FIS business mtg., Science Board)
6. Open discussion

**WG 34 Endnote 3****Proposal for a Topic Session on “*Application of EBFM in the 21st century: progress and challenges in pelagic systems*” at PICES-2019**

Convenors: Barb Muhling (USA, WG34) Barbara.Muhling@noaa.gov, Gerard DiNardo, USA, gerard.dinardo@noaa.gov

Co-sponsor: ISC

Duration: 1 day

Invited speakers: TBD

Physical, biological and social components of marine ecosystems interact in complex ways through space and time, resulting in challenges for natural resource managers. Environmental variability and climate change can drive shifts in the spatial distribution and productivity of target and bycatch species, particularly for more mobile pelagic animals. This can impact the effectiveness of stock assessment and management. Ecosystem-Based Fisheries Management (EBFM) aims to address these issues by including environmental effects, species interactions, and other ecosystem-level processes in the management process for exploited species, in addition to fishing pressure. However, despite the theoretical benefits of EBFM, most stock assessments and spatial management measures still use single-species models with no environmental information incorporated.

In this session, we seek presentations describing links between oceanographic processes and management applications in the pelagic environment. Management applications could include the development or modification of stock assessment models, dynamic ocean management rules, bycatch mitigation, multi-species assessments, or other decision processes. Presentations describing opportunities, challenges or lessons learned from EBFM implementation are also welcome. Our session will begin with scientific presentations, followed by a discussion panel of scientists and natural resource managers, which will explore practical aspects of operationalizing EBFM, and promote exchange of ideas between the scientific and management communities.