

2021 Report of Working Group on Small Pelagic Fish

Working Group 43 (WG 43) on *Small Pelagic Fish* held its 2021 meeting over three hours during September 23, 2021 (in Eastern Pacific time zones; or September 24 in Western Pacific time zones). The virtual meeting was facilitated by the PICES Secretariat using Zoom. PICES WG 43 is one component of the joint ICES-PICES Working Group on Small Pelagic Fish (WGSPF). Dr. Ryan Rykaczewski and Dr. Akinori Takasuka presided over the meeting as co-chairs of the PICES portion of this Working Group. There were 21 participants (*WG 43 Endnote 1*) in the meeting; some of the absent members emailed to indicate conflicting meetings.

The WG 43 meeting was preceded by a three-day, joint ICES-PICES WGSPF annual meeting which took place (remotely) September 10, 13, and 14. There were a total of 57 participants in that joint meeting. The timing of the joint meeting was reasonable for colleagues in Europe and the east coast of the US, but not for colleagues around the Pacific Rim. Hence, the WG 43 meeting was viewed as an opportunity to communicate the broader ICES-PICES WGSPF discussions with the PICES members and guests. Several members attended both the joint ICES-PICES meeting and the PICES WG 43 meeting in September.

The primary points addressed during the WG 43 meeting were updates from each “activity group” (*WG 43 Endnote 2*) and from the Scientific Steering Committee of the PICES/ICES/FAO International Symposium on “Small Pelagic Fish” that has now been delayed until November 2022 in recognition of the continuing restrictions on international travel and gatherings due to COVID-19. We are hopeful that travel will be permitted by most institutions by next fall. Below are notes summarizing key points from the agenda items (*WG 43 Endnote 3*).



A screenshot of the WG 43 meeting held during PICES-2021 via Zoom.

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AGENDA ITEM 1

Welcome and introductions with brief updates on the SPF research of individual members

Members in attendance briefly introduced themselves and their interests in small pelagic fish. In addition to the members, several observers and ICES members (for whom the ICES-PICES joint meeting was at an inconvenient time) joined the discussion.

AGENDA ITEM 2

Review of WG 43 terms of reference

The terms of reference and expected deliverables of WG 43 were discussed, and these are accurately reflected on the WG 43 [website](#). Development of “task forces” on topical research questions is noted as the expected deliverable for the first year of WG 43’s tenure, and this deliverable addresses term of reference #2. These task forces were formed during the first year of the Working Group, and progress on most of the goals of each task force has progressed admirably (see the WG 43 website for an updated list of the activities of the task forces).

A deliverable that was planned for 2021 was a worldwide review of the responses of small pelagic fish to environmental change. Several of the joint Working Group members collaborated on such a review, and the manuscript has been published in *Progress in Oceanography* (see [Vol. 191, February 2021](#)). However, we expect that reviews on more specific, disciplinary topics will also be generated through discussions within the joint Working Group.

One important point to note is that term of reference #5 refers to the goal of organizing an ICES/PICES symposium on small pelagic fish “tentatively scheduled for late 2021.” A substantial amount of progress has been made on this agenda item (though the timing has been delayed until late 2022). Abstract submissions are set to open in December 2021, and more information is noted below under Agenda Item 4.

AGENDA ITEM 3

Update from FUTURE SSC

Dr. Jennifer Boldt, FUTURE Scientific Steering Committee liaison to WG 43, provided an update about FUTURE activities. This included the transition from FUTURE Phase II to Phase III. Although many of the overall objectives and key questions of the FUTURE program are still relevant and reflective of the needs of PICES integrative science, a need to provide some guidance and alignment with the UN Decade of Ocean Science for Sustainable Development is seen as necessary. Dr. Boldt noted the value of WG 43 (and its multidisciplinary interests) as one important element of the alignment between PICES and UNDOS goals, and it was noted that the symposium planned by WG 43 has received endorsement as an activity of UNDOS.

Dr. Boldt reviewed the FUTURE product matrix, noting that it is intended to be completed by working groups as they conclude their activities. She also noted the proposal for a new working group proposal on “Climate Extremes and Coastal Impacts in the Pacific” to which WG 43 may make contributions regarding understanding the impacts of oceanographic processes on valuable small pelagic fish populations.

AGENDA ITEM 4

Status of the SPF Symposium

The Co-Chairs of the joint PICES-ICES Working Group have been working with the help of Dr. Bychkov, Dr. Susana Garrido, and several others to plan for an international symposium on small pelagic fish (in the same style as the 2017 PICES/ICES symposium in Victoria). We have secured a venue in Lisbon, Portugal, thanks largely to the efforts of Dr. Garrido. The International Symposium “Small Pelagic Fish: New Frontiers in Science for Sustainable Management” will be held at the Calouste Gulbenkian Foundation from November 7–11, 2022 (rescheduled from February 2022) with PICES, ICES, and FAO as the primary international sponsors. Several co-sponsoring organizations are also involved. The planned structure of the symposium was presented, with half-day workshops on Monday (November 7) being organized by the broad scientific community. The main symposium will then take place from Tuesday through Friday with morning plenary sessions and afternoon topic sessions. The final day (Friday, November 11) will also include an afternoon, summary plenary session. There will also be a poster session, as well as mentorship and social activities. More information regarding the symposium can be found at <http://www.pices.int/smallpelagics2022>. Important dates for registration were highlighted. Again, Dr. Bychkov deserves praise as the leading organizer of this event, and Dr. Garrido as the local host.

Following the symposium, we will have a smaller Working Group meeting to be held jointly with our ICES and FAO colleagues to discuss ongoing efforts and potential future activities.

AGENDA ITEM 5

Overview of science activities of the broader PICES/ICES Working Group

Updates from each of the task force “activity groups” of the Working Group were provided. This discussion was facilitated by slides that were contributed by the co-leads of each of the 11 activity groups. These slides are posted on the PICES WG 43 website (<https://meetings.pices.int/publications/other/members/WG-43-WGSPF-2021-ANNUAL-MEETING.pdf>). In addition, co-leads posted a longer, pre-recorded power-point overview of the progress of the activity group, and these are posted on the ICES SharePoint website to which all WG 43 members have access. It was clear from these updates that good progress has been made in most of the activities, with tangible work. Several avenues for the improvement of the WG functioning were adopted, including measures to strengthen international collaboration, a more efficient integration of newcomers into the activities, and a clear delineation of works to be presented by the end of the Working Group term.

AGENDA ITEM 6

Annual WG reports to both ICES and PICES

In discussing the reporting to the FIS parent committee and to Science Board, several points were raised. First, we requested a one-year extension (to PICES-2023) motivated largely by the COVID-stimulated delay of the international symposium that is now scheduled for November 2022. Following that symposium, we expect publication of two special issues, including some perspectives papers, and so we feel the requested extension is warranted. Second, we seek some engagement (that might include additional members) with individuals with expertise in human communities and small pelagic fish. Our membership is heavy on ecologists. We would also benefit from more participation by Early Career Ocean Professionals (ECOPs). We have a committee to facilitate ECOP engagement at the November 2022 symposium but engaging well before the symposium would be best. Finally, participation by PICES member countries is mostly good, but

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if there is another Russian colleague who would like to be engaged in the Working Group activities, it would be welcomed.

In response to these requests, we were informed that: 1) the term of the Working Group can indeed be extended one year; 2) the HD committee will nominate one individual to become involved in the Working Group, and HD would like to be a co-parent of the group; and 3) participation by ECOPs and by experts in any of PICES member countries would be best facilitated by contacting those individuals and the ECOP group directly.

AGENDA ITEM 7

Overview of the WG 43 related activities during the PICES Annual Meeting

Activities of interest during the 2021 PICES Annual Meeting were highlighted. These included two workshops: BIO/FIS (W1) on “*Can we link zooplankton production to fisheries recruitment?*” and FIS (W2) on “*Pelagic and forage species – predicting response and evaluating resiliency to environmental variability*”.

AGENDA ITEM 8

Potential PICES-2022 sessions

A session on small pelagic fish was proposed for PICES-2022, led by Chris Rooper and others from WG 43. The proposed session is titled “*Environmental variability and small pelagic fishes in the North Pacific: Exploring mechanistic and pragmatic methods for integrating ecosystem considerations into assessment and management*” (WG 43 Endnote 3).

AGENDA ITEM 9

Plans for an in-person joint meeting of the ICES/PICES working group

As mentioned above, the next (and perhaps final) in-person meeting of the joint ICES/PICES WGSPF is planned for the two or three days following the international symposium in Lisbon in November 2022. The time will be devoted to: 1) the organization of publications to be submitted for peer-review; 2) planning the continuation of the WG (e.g., FAO interest), and 3) drafting of the final reports to ICES and PICES.

AGENDA ITEM 10

Open for discussion

Following a brief discussion about the challenges of working and collaborating remotely across many time zones, the WG 43 meeting concluded.

WG 43 Endnote 1**WG 43 participation list**Members in attendance

Ryan Rykaczewski (USA, Co-Chair/PICES)
 Akinori Takasuka (Japan, Co-Chair/PICES)
 Jennifer Boldt (Canada)
 Francis Juanes (Canada)
 Chris Rooper (Canada)
 Yongjun Tian (China)
 Hui Zhang (China)
 Toshihide Kitakado (Japan)
 Shinichiro Nakayama (Japan)
 Haruka Nishikawa (Japan)
 Motomitsu Takahashi (Japan)
 Sukyung Kang (Korea)
 Jung Jin Kim (Korea)
 Noelle Bowlin (USA)
 Ric Brodeur (USA, ICES WGSPF member)
 Jason Everett (Australia, ICES WGSPF member)
 Shuyang Ma (China, ICES WGSPF member)

Members unable to attend

China: Fei Chai, Xianshi Jin, Kui Zhang
 Japan: Sachihiko Itoh
 Korea: Dohoon Kim
 Russia: Oleg Katugin
 USA: Matthew Baker, Isaac Kaplan

Observer

Alex Zavolokin (NPFC)

PICES

Vera Trainer (Science Board Chair)
 Alex Bychkov (past Executive Secretary)
 Lori Waters (Administrative Assistant)

WG 43 Endnote 2**WG 43 meeting agenda**

1. Welcome and introductions with brief updates on the SPF research of individual members
2. Review of WG 43 terms of reference
3. Update from FUTURE SSC
4. Status of the SPF Symposium
 - Session descriptions
 - Workshop overviews
 - Important dates
5. Overview of science activities of the broader PICES/ICES working group (i.e., summary of discussions held during the previous week in combination with the ICES WG): 11 “activity groups” divided into 3 “task forces”
6. Annual WG reports to both ICES and PICES
7. Overview of the WG 43 related activities during the PICES Annual Meeting
8. Discussion of potential PICES-2022 sessions (noting, though, that our symposium is scheduled for November 2022)
9. Discussion of plans for an in-person joint meeting of the ICES/PICES working group following the 2022 SPF symposium
10. Open for discussion
11. Adjourn

WG 43 Endnote 3

Proposal for a Topic Session on
“Environmental variability and small pelagic fishes in the North Pacific: Exploring mechanistic and pragmatic methods for integrating ecosystem considerations into assessment and management”
at PICES-2022

Co-Convenors: Chris Rooper (Canada), Toshihide Kitakado (Japan), Vladimir Kulik (Russia)

Co-sponsor: North Pacific Fisheries Commission

Duration: 1 day

Small pelagic fish species are a key component of North Pacific ecosystems. They are a prey species for large bodied fishes, marine mammals and birds and an important predator of zooplankton and phytoplankton production. In addition, there are substantial commercial fisheries that exploit small pelagic species. Small pelagics are often short-lived and respond strongly to environmental changes. This makes these species particularly difficult to manage, as changes in productivity caused by environmental changes can precede management responses. This also creates an opportunity, in that environmental changes can have impacts on the species distribution and abundance over shortened time scales that are relatively easily detected. For example, Pacific Saury is a species with a 2-year life cycle, with distribution and abundance known to be strongly correlated to temperature and ocean conditions. Abundance and productivity are likely to change over very short time scales. The species also supports a large multi-national commercial fishery in international waters. However, the linkages to environmental conditions are not parameterized in the existing stock assessment or management strategy. This proposed session will focus on methods to incorporate the environment into stock assessment and management of small pelagics. We will solicit contributions under three broad categories, 1) contributions that hypothesize and apply mechanistic approaches to relating growth, recruitment and productivity to environmental changes in the North Pacific Ocean, 2) methods for monitoring and predicting ocean conditions that have implications for population status and can assist in projecting future changes in the abundance of small pelagic fishes and 3) examination of environmental relationships that can contribute to understanding the implications for management measures such as biological reference points and harvest control rules.